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Questions 2000: Recovering From Bubbles

Looking back upon the first year of the new century, I asked myself, “How have the questions changed?” It seems the phrase “Same stuff, different day,” describes the case here. The names have changed; the types of images have been changed; giclée remains on everyone’s lips; nevertheless, “Can you mount this?” remains the burning question.

I have been monitoring the e-mail list groups for years now and I see the same issues surface again and again. How do you mount a Chinese paper cut? What is Mylar-D? What are the lumps under this photograph and how do I get rid of them? Can Cibachromes be dry mounted?

I even conferred with my friends from the UK about their most asked mounting questions. It was unanimous. “What to do with photos?” won the popularity contest again this year. I continue to write and lecture about the “dreaded photo” and just when it seems most people have finally grasped the solutions, something new like digital photo images comes onto the scene. Let’s explore, understand, and resolve.

How Do You Mount Photographic Digital Images?

A digital photograph is a scanned photo, slide, or negative that is then printed out onto photographic imaging paper using

an ink jet system. It looks like a traditional RC (resin-coated) photo and, in most cases, reacts like one. That means it tolerates heat mounting, laminating, and even canvas transferring (with copyright permission). It is also subject to the same potential problems faced by traditional RC photos, including orange peel and nonporosity.

I have extensively tested Kodak Digital Imaging papers and they have shown no adverse reactions to high temperature. However, the lack of porosity may cause larger images to trap air between itself and a somewhat nonporous substrate. A nonporous substrate is one that might have a tendency to not allow excess air to escape during basic heat mounting techniques. Regular foam boards, often the substrate of choice for photos, fall into this category.

What Causes Air Bubbles?

The lack of porosity is the biggest problem in mounting larger photos and it is the result of either trapped air between the nonporous photo and the selected substrate, or the adhesive bonding at the outer edges prior to vacuum pressure being applied.

Air bubbles can be caused by a number of things. When using a mechanical press, there may be moisture remaining in the mounting materials if they are not predried prior to the mounting. Air bub-

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bles can also occur in a vacuum press when the adhesive bonds prior to the draw of the vacuum creating the required pressure for a clean mount.

Could You Explain the Vacuum Problems?

In a hot vacuum press, the two elements of pressure and moisture are automatically addressed and corrected by the very act of the vacuum being drawn. This sucks the air and subsequent moisture from within the system during mounting. Once correct pressure has been applied to the nonbreathable project and the moisture is removed, the photo will mount flat to the board.

A vacuum system applies pressure automatically when the vacuum has been initiated. There is a time lapse between when the press is turned on and when all the air is suctioned out and the heated pressure has been properly applied.

A vacuum press heats items from the outside toward the center of any mounting project, like a conventional oven (rather than from the center to the outer edges like a microwave). So, in theory, the outer edges of a mounting project might actually begin to activate (melt) prior to all the air in the center of the project being extracted during the draw of the vacuum.

If a permanent tissue adhesive has been selected to mount the photo, then as all the layers in the mounting package reach recommended mounting temperature, the adhesive will activate and the

project will become permanently bonded within the press.

Consider for a moment if this permanent adhesive begins to activate around the outer edges prior to extraction of the air. Since all of the moisture might not have been removed by the vacuum yet, it is possible it could turn to steam at higher temperatures, thus expanding the paper fibers and creating trapped air and/or air bubbles.

Also, if the mounting layers

resulting bubble will never again fit into that same space without creating a crater effect (see Diagram 3).

If the outer edges of the photo have been affixed to the board with a permanent tissue-core adhesive, they would need to be shifted towards the outer edge in order for the nonporous artwork to indeed lie flat after remounting.

Second, even if there had been no steam and the paper was inclined to mount flat after punching

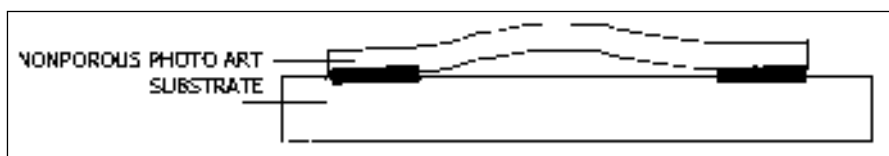


Diagram 1: Air can be trapped between any nonporous substrate and plastic- or resin-coated photo. If mounted at hotter temperatures, this trapped moisture may turn to steam.

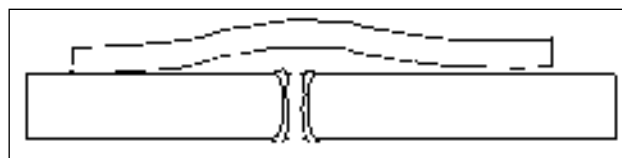


Diagram 2: Punching a hole from the back will not solve the problem since the steam may cause the paper fibers to expand.

have begun to melt together at the outer edges, then trapped air bubbles could remain between nonporous layers, particularly toward the center of the photo (see Diagram 1). I am often asked why a hole cannot be punched from the back of the substrate to allow the trapped air to be then forced out from between the layers (see Diagram 2).

The truth is that creating a hole in the substrate can cause two other problems when remounting. First, the air would most certainly be compressed from between the layers, but the paper would not shift out. Since this air bubble is often the result of expanded air that has become steam during mounting, the paper fibers have expanded by the moisture and the

ing that hole, there could still be a flaw in the mounting due to the puncture opening in the substrate beneath

it (see Diagram 4). This would be particularly noticeable with a very high gloss or dark photo.

What is the Proper Procedure and TTPM?

In order to solve this dilemma of photos (or nonporous poster images) that bubble during mounting, it is important to remember TTPM (time, temperature, pressure, moisture). Obviously, the proper time and temperature are necessary. Pressure must be accounted for by allowing a vacuum press to mount potentially nonporous items in a two-temperature method. This allows for the vacuum to be drawn prior to the activation of the adhesive. Moisture must be controlled by predrying all mountings, porous and nonporous, in any mechanical press.

By following the guidelines of good TTPM techniques there will be no chance for improper mountings to occur. Think about selected materials and remember that when

two nonbreathable surfaces are being mounted together, the risk of suffocation remains a big possibility and the project could “die.”

What is Two-Temperature Mounting?

Two-temperature mounting is to begin at a temperature too low for the adhesive to activate. This allows for the press to draw its vacuum. If mounting with a standard permanent tissue-core adhesive such as Color-Mount, Super Unimount, or any similar average 190°F tissue, begin with the vacuum press around 170°F.

Since vacuum presses vary in the time it takes for them to draw their vacuum based on the depth of the drop from the heat source to the relaxed rubber diaphragm, this temperature, as well as procedure, varies with manufacturers and equipment.

Once the project is placed into the press, turn it to the proper bonding temperature for the selected adhesive. Next, turn on the press. The mounting time will be longer since it will take additional minutes for the press to heat up. However, the vacuum will draw the moisture out and the pressure will be applied long before the heat is at bonding temperature.

How Do You Mount Cibachromes in 2000?

Yet again, the question of how best to mount a Cibachrome was a very common one this year (*PFM* “Static Mounting,” February 1997). It seems that an Ilfochrome Classic is still best presented when static

mounted (see “The Mounting and Laminating Handbook” pages 63-64). Regardless of lightfastness, giclées, and digital photographs, Cibachromes remain 100% polyester images. They are highly susceptible to scratching, moisture damage, and orange peel when mounted in any other method than those using preservation techniques and static mounting.

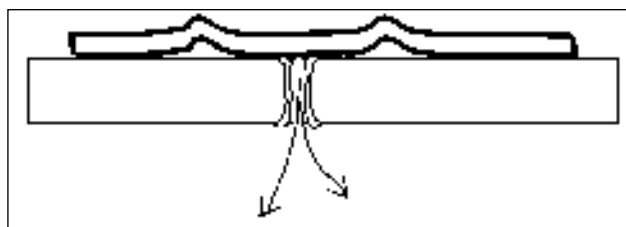


Diagram 3: If the paper/photo is not removed and allowed to properly shift, it can form a crater.

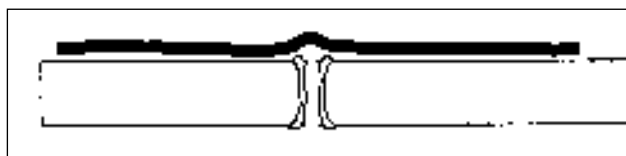


Diagram 4: Even if the photo were to lie flat, there is the possibility of a small lump that could show beneath the mounting.

Although preservation techniques do maintain the dignity and beauty of the image, these photos are very prone to buckling and puckering into the mat windows because of their polyester constitution. By static mounting them to an acrylic backing, they are not only totally reversible but will remain flush against the backing sheet for a smoother presentation. This also helps prevent them from coming into contact with the glazing and damaging the image.

Can RC Photos be Static Mounted Like Cibachromes?

Unfortunately RC photographs and digital images are made up of resin coated paper on either side of ply

paper. Their lack of pure plastic prevents them from developing the static electricity needed to achieve the attraction required to mount using the same acrylic sheet and static technique mentioned above.

Orange peel is the biggest issue surrounding RC photographs and that, quite simply, must be controlled by a combination of selected substrate smoothness, temperature, and adhesive process. So far the smoothest substrates for use with RC color and black and white photos that I have found include the stiffer, 100% cotton, unbuffered photo boards available from all matboard manufacturers, clay-coated foam boards, and any other smoother surfaces you might prefer (*PFM* “Photo Substrates,” October 2000).

How Do You Control That High Gloss Photo Scuffing?

An ongoing question that once again involves photo images is about the emulsion damage on high gloss photos. I wrote about this in *PFM* (October 1998, October 1997, and November 1997). It seems the damage that occurs is due to the silicone on the release materials required to protect both the project and the equipment from contamination, dirt, and adhesives.

Hot Press has a nonsiliconed acetate film product called Overlay Foil that will protect the gloss surface from the release materials. It is a thin film that is cut to cover the photo and then is discarded upon completion of the mounting

process. The resulting mounted photo is glossy and smooth with no silicone damage or scuffing.

How Do I Charge for These Special Materials?

That's an easy question to answer. Anytime an additional service, material, or technique is used to improve or protect an item, the additional cost must be passed on to the customer. As framers, we must be paid for our expertise just as your auto mechanic, ferrier (horseshoer), or doctor is.

It is your additional materials and knowledge that enables you to better care for the items put in your custody. The additional treatments and better mounting practices should not be questioned, but simply included in the charges for the mounting services.

If you are still having trouble with that concept, the best way to

handle the selling up into the better technique is to have under the counter samples (*PFM*, "Selling Mounting," July 2000) with the visuals to showcase the best and the traditional, less costly methods.

Then let the customer choose. Odds are they won't select the orange peeled Ilfochrome Classic over the static mounting once they've seen the difference. Remember, it's hard to keep them down on the farm after they've seen Paris.

So the best of the New Year to you and let's welcome the real millennium, that 21st century, with a better understanding of these methods. Ring out the old (ways) and ring in the new! Stay tuned in January for my New Trends which will cover new products available for photo substrates. ■