Supporting Tears in Leather

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Introduction:

This technique was devised as a means of supporting a tear in leather without attaching the leather overall to the structural support below. The technique was first devised for a leather-covered coffer that dates from 1613. Later, the method was found to be even more useful in mending tears in leather upholstery without affecting the underupholstery.

This procedure involves casting a film of Acryloid B-72, which is then secured to backing material. This creates a material with adhesive only on one side. It is a two step process but has many benefits and is another option to impregnating a backing material.

Technique for making film:

Hollytex, (#3529), a non-woven polyester, was chosen for the backing fabric. It has a smoother surface than Reemay, another non-woven polyester. It currently comes in five weights. A somewhat stiff weight was chosen to aid in sliding under the leather.

A mixture of 30% Acryloid B-72 in a 1:1 solution of acetone and xylene was made. The film was created by applying two coats of the B-72 mixture onto silicone release Mylar. The addition of the xylene to the adhesive mixture created a more flexible film and lowered the likelihood of air bubbles. When the film dried, it was peeled away from the Mylar. The film could then be easily cut to any shape as well as be positioned onto the Hollytex exactly where needed. I also found that two layers of film could be placed on top of one another if a thicker film was desired. A small solvent chamber was created over the positioned film and left for 10-20 minutes. The solvent chamber allows the film to be attached only to one side of the Hollytex.

In all of the treatments described below I used templates of the areas in need of support. This was done to aid in the fitting of each support as well as determining the placement of smaller supports or bridges.

Leather covered coffer:

The leather of the coffer was quite brittle from the effects of red rot. Several small losses were also present. The torn areas were in need of support since there were extreme planar deformations. It was also clear that these tears were going to enlarge and the new areas were going to be in need of support at a later date. A method was needed that could back the edges of the torn leather, giving it extra support while being adhered to the wood support only minimally. The backing material could also support the leather if the tear needed to be released.

The prepared Hollytex supports were secured in place with acetone, introduced by syringe. The tears were weighted while drying

The fills were made with watercolor toned Japanese paper, secured to the Hollytex support with Jade 403. A PVA emulsion was selected because it would be less disturbed by acetone, should the support need to be lifted from the wood. Color compensation was done with watercolor paints.

Use in Upholstery:

I have since treated leather upholstered chairs using Hollytex bridges with cast films of B-72 with great success. A group of first quarter nineteenth century English side chairs, retained its original underupholstery and original leather covers. The leather covers were all torn to varying degrees, with original upholstery that all exhibited tears to varying degrees. The edges of the tears met without requiring filling. The tears needed to be stabilized without affecting the layers of underupholstery. These tears were all supported with small Hollytex bridges, that secured the two sides of the tear together in localized places. that were slipped under the leather. The B-72 films were made smaller than the Hollytex bridge. This created a margin of Hollytex around the film, in order to reduce the chance of over flow. The area was weighted until dried.

In another case the bridge created the base for fills. This group of eighteen century side-chairs, contained their original upholstery; only one was undisturbed. The undisturbed leather unfortunately had torn and had been repaired with a white glue applied directly to the linen underupholstery. Attempting to release this glue would only jeopardize the the now fragile underupholstery. Areas of the tear had released and were cupping. There was fear of further damage to the leather. In this case the Hollytex bridge was slipped under the leather only in areas separated from the underupholstery. The weight of the Hollytex was important so that there was a substantial base for the Japanese paper fill.

Conclusion:

I have found that the Hollytex with the attached film can be prepared in the laboratory and transported, allowing the repair to be easily performed in situ. The greatest benefit of this technique it that there is complete control by the conservator of the materials at each step. Since leather is frequently found covering another material this technique could be useful for many other types of artifacts. The projects mentioned above all involved vegetable tanned leathers, but the technique would work on other skin products processed in different ways. It is my hope that this technique can be of use for others.

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Materials:

Acryloid B-72, methylacrylate & ethyl methacrylate co-polymer, Rohm & Haas.
Hollytex #3529, non-woven polyester, Talas.
Jade 403, PVA emulsion, Talas
Japanese paper
watercolor

Two methods of applying the Acryloid B-72 to the Hollytex were used. One method was impregnating the Hollytex with a 30% Acryloid B-72 in a 1:1 solution of acetone and xylene. The other method was creating a film of the above adhesive mixture, which was later applied to only one side of the Hollytex by means of a solvent chamber of acetone. The impregnated areas of the Hollytex were used both to secure the leather and the wood together, and to create a base for the filled areas. The second method was used to back the leather that was not to be attached to the wood. Both applications of the Acryloid B-72 were used on the same bridge.