

South Central Kansas Library System

Basic Book Repair for Libraries

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In-House book repair is appropriate for collections not needing complete rebinding by a commercial binder. The advantages of repairing books in the library are that high use materials can be returned to the stacks more quickly and simple repairs may often be done more economically. These advantages must be weighed against the cost in repair materials, staff time and training associated with staff attaining an acceptable level of expertise.

Several factors can affect the physical condition of collections. These include how an item is handled, processed and shelved in addition to environmental factors. While library staff members have varying levels of control over these factors, it is important to be aware of their impact. It is often the person doing repairs that can identify places and practices that are negatively impacting the library's collection.

Environmental Factors that Damage Books:

- **Light** – Sunlight (and fluorescent lights) can discolor book spines and pages as well as drying out adhesive and making paper brittle.
- **Heat** – As with light, high temperatures encourage degradation in the adhesive and paper of books. While a cool temperature is not always practical, the best compromise is to keep temperatures steady.
- **Humidity** – High humidity can deform books and encourages mold growth. Mold growth on books can be treated but *cannot* be repaired. While 45% humidity is ideal, it is best to avoid wide fluctuations.
- **Pests** – Keep an eye out for indications of the presence of insects and rodents.

The mishandling of books is often the biggest culprit in causing their damage. Educating staff and patrons about proper handling may be your best defense.

In-house book repair should not be seen as a solution to all book damage. A certain percentage of books will wear out each year and a comprehensive weeding plan will help to identify books when they reach this stage in their lives.

How Books Appropriate for In-House Book Repair are Identified:

- Is the damaged book worth keeping? Is the material outdated? Is there a new edition?
- Is the cost of ordering a new book less than the cost of repairing the original (don't forget to factor staff time)?
- Are there other copies in the library?
- Is there a hold list for the item? Is the topic in demand?
- What is wrong with the book? Are pages missing or torn? Is the spine broken? Is there water damage or mold?
- Is the book brittle? Will it hold up to a repair?
- Do I have the time, training, and supplies needed to complete the repair?
- Is the item unique (out of print, a local history or genealogy book)?

When repairing books we do our best to apply these principles of conservation.

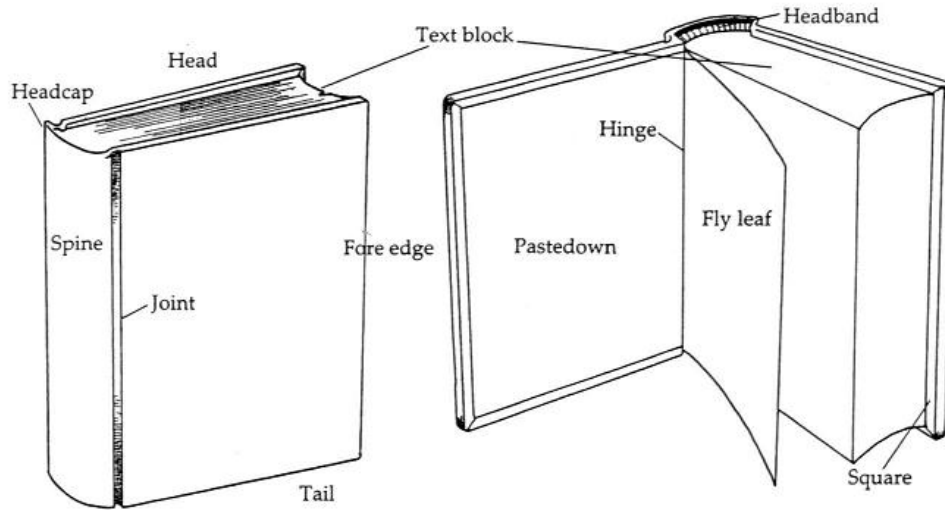
- **First, do no harm.** If a book repair seems difficult or you do not think you have the skill to complete the repair, set the book aside. If the book is particularly valuable or rare it is far better to ask for help than inadvertently destroy the book.
- **Harmlessness** - Do the least possible harm to the item.
- **Durability** – The mend should provide protection throughout the life of the item.
- **Stronger is not always better** - The strength of the mend should never be greater than the strength of the materials mended.
- **Reversibility** – In theory, any treatment applied to a book should be able to be undone at a later date. In reality, only enclosure of a book (such as boxing) is truly reversible.
- **Expediency** – Almost any non-brittle book can be repaired, given enough time and proper equipment. Simple book repair implies that the repair will not take hours or days of staff time. As you become more comfortable with simple book repair, the decision to repair items in-house vs. sending the book out for repair will become easier.

Tools and Supplies

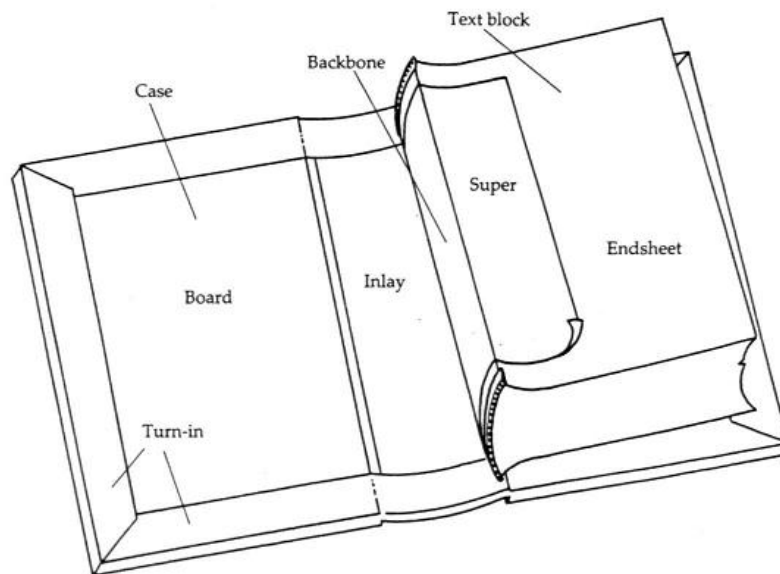
- **Knives** – X-Acto or box cutters. You will want very good control of the blade.
- **Scissors** – keep sharp and clean
- **Self-Healing Mat** – doesn't dull blades, protects your tables and assists in cutting
- **Sharp Paper Cutter** – a good paper cutter can help speed things up, but make sure that it cuts square
- **Book Tape** – (polypropylene) usually 3.5 ml
 - This is very strong. **Do not use to repair tears!** (The paper will just tear at the edge of the tape) Use this tape to apply spine labels and to reinforce the spine and edges of paperbacks.
- **Book Repair Tape** – (polypropylene) 2.5 ml or less
 - 1.0 ml is best. Use for repairs on shiny surfaces such as magazine or journal covers and picture book pages.
- **Japanese Tissue Paper**
 - **Heat Set Tissue** – This is Japanese tissue with a heat activated adhesive for paper repairs (Filmoplast-R comes in rolls from book supply vendors – Brodart 38 218 001).
 - Japanese tissue papers comes in many weights and can be used for different types of paper repairs but learning to use it with glue can be more difficult and messy than the Heat Set Tissue
- **Tacking Iron** – also called a heat sealing iron. This is used with the heat set tissue to repair tears in pages and can also iron out curling paperback covers. These are also sold at craft stores for a better price than in the book supply catalogs.
- **Adhesive**
 - **PVA** (polyvinyl acetate) – strong bond and remains flexible. Demco's Norbond is the most common. Elmer's glue is bad for books because it is not flexible when dry.
 - **Wheat starch paste** creates a reversible bond. This comes in a powder and you mix up what you need as you go.
- **Glue brushes** – many sizes work but a flat edge is often best (we will use DEMCO 162-02360)
- **Syringes** – Used to apply glue in small amounts with great accuracy in the textblock. Great for loose pages. Many types are available.
 - **Medical Syringe** – Can be purchased online or at any pharmacy, even ones in Grocery Stores.

- **Craft Syringe** – All plastic syringe that can be purchased online or at craft stores
- **Fine Line Applicators** – Multiple types, either with removable tips or without. Can be purchased online or in craft stores and can be found in the aisles with model kits.
- **Knitting Needles** – can be used to apply glue to loose hinges and also to maintain the groove when pressing the books. Size 5 or 6 needles work best and they should be as long as or longer than the book. Bamboo or plastic dowels will work also.
- **Wax Paper** – use to keep glue from sticking to pages and other things that it isn't supposed to while you work. You can buy wax paper or recycle the wax sheets that barcodes come on.
- **Binding Tape – Single Stitched, cloth** – this can be used to repair endsheets, creating a durable hinge for heavy books. Binding tape comes in many widths so buy what works best for the books that you will be doing the repairs on.
- **Press board** – these will sit between the books and the bricks to keep the books flat while the repairs dry. You can get boards at home supply stores like Lowe's, Home Depot, etc. and they usually will cut them to size for free. You will want them thick enough not to warp and cut slightly larger than the books if possible. I had mine cut to 12" by 16"
- **Wrapped bricks** – rather than buy a book press, use bricks. Wrap them with a thick paper (like cardstock or endsheet paper) to reduce chance of damaging books.
- **Ruler** - Cork backed metal ruler will not slip and has a good straight edge that won't warp
- **Erasers** – can be used to remove pencil marks, dirt and tape adhesive. Start with a very soft eraser (such as Eberhard Magic Rub), which will do the least damage to the paper.
- **Small Plastic Cups with Lids** – use to hold glue or water. Any cup for water will do, but I like the small ones with lids so I can snap the lid on to keep from spilling water (or glue from drying out) when I need to step away from my repair table.
- **Micro-spatula** – handy tool for lifting off tape and stickers and for a variety of other tasks
- **Bone folder** – most of these are actually plastic. They are good for creasing paper and working paper/tape/cloth into a groove.

Parts of a Book



Case Binding



Drawing by Norman C. Harris ©2001

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Repairs

Paper mending

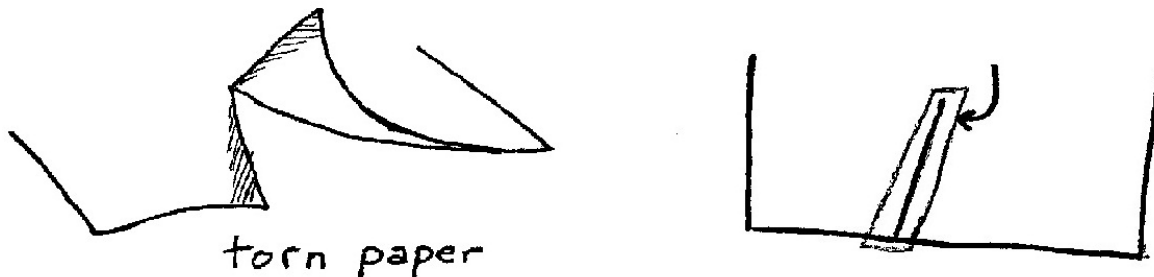
My repair video: <https://www.sckls.info/services/continuing-education/video-recordings/basic-book-repair-repairing-torn-pages>

Another example repair can be seen at: <https://youtu.be/QAe6G9TFfso>
(this repair is a glue repair and is different than the steps below, but may be closer to what some of you already do)

Distinguish between a *tear* and a *cut*. Torn paper will often leave an overlapping edge while cut paper has little or no overlap.

Heat Set Tissue Repair – for most types of paper repairs, but not shiny paper

Materials needed: Heat Set Tissue, Tacking Iron, Clean White Paper



Plug in the Tacking Iron and set it to medium heat.

Torn paper will often leave an overlapping edge. Line up the overlapping edges so that the text can be read on both sides of the page.

Cut a piece of heat set tissue to cover the tear in the page.

Place a sheet of clean, white paper over the repair area. Do not use newspaper or paper with writing because the ink can transfer from the paper to the book!

Run the tacking iron over the repair area and press down with some force. Repeat if the heat set tissue doesn't take completely the first time.

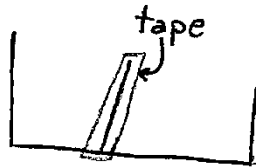
For this repair, you only need to repair one side of the page.

Tape Repair – for shiny paper repairs, such as magazine covers and picture books

Materials needed: Polypropylene 2.5 ml or less (book, or document, repair tape), bone folder, scissors



cut paper



Apply a strip of tape allowing it to protrude over the edge of the paper.



Rub gently with a bone folder, and repeat on other side. Trim tape.



Edges of tape on either side of paper should not align.

Do NOT use Book Tape or Scotch Magic Tape for these types of repairs.

If tape is used, it is best to use it on both sides of the paper. This will add bulk to the paper and should not be done if there are numerous tears throughout the book. When putting tape on either side of the paper, do not let tape edges match up as the paper is not as strong as the tape and will often tear at the tape's edge.

Tipping in Loose Pages – for reinserting a page or few pages that have fallen out or been torn out of a book.

My repair video: <https://www.sckls.info/services/continuing-education/video-recordings/basic-book-repair-tipping-in-loose-pages>

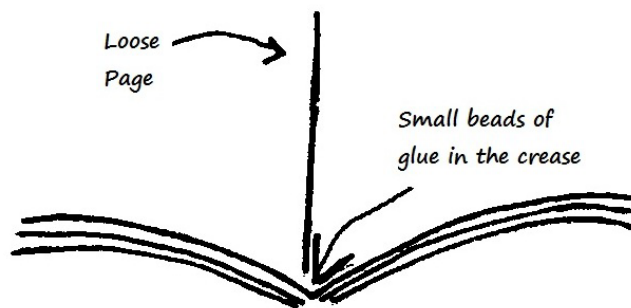
Another example repair can be seen at: https://youtu.be/iQjJXC8_VS4

Materials needed: Syringe (or extremely small brush), PVA (glue), paper trimmer or scissors and straightedge ruler, wax paper, press board, and covered brick

*Before tipping in loose pages the gutter of the book where the loose page will be reinserted needs to be cleaned of any debris or torn paper. Also, the binding edge of the loose page needs to be trimmed with a paper cutter, or scissors and straightedge.

Procedure:

- Locate the pages that need to be tipped in, and trim the smallest amount off of each edge (less than one eighth of an inch). It is better for the page to be slightly smaller than the pages around it than sticking out of the book where it might become damaged.
- Load the syringe with glue and place the needle on the syringe.
- Using the syringe, run a small bead of glue inside the crease of the book where the missing page will go. (If you are using a brush, make sure that you do not get glue on the surrounding pages, only in the crease, or the pages will stick together)
- Place the missing page into the glued area. First, being careful to put the page in the correct order and making sure that the page fits into the text block and does not hang over the sides.
- Place a folded piece of wax paper on each side of the newly inserted page. Make sure that the wax paper gets as far into the crease as possible.
- If there is a great amount of excess glue, try to blot it up before it dries.
- Put the repaired item under a press board and covered brick to dry. It will usually dry within 15-20 minutes.



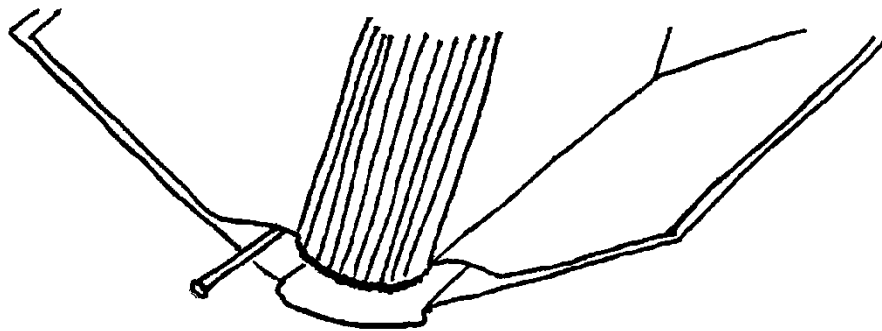
Tightening Loose Hinges – for when books begin pulling away from the spine. This happens most often to large and heavy books, but it can happen to any hardcover. If this problem is not dealt with, it can lead to more serious damage.

My repair video: <https://www.sckls.info/services/continuing-education/video-recordings/basic-book-repair-tightening-loose-hinges>

Another example repair can be seen at: <https://youtu.be/rUoks74OYYA>

Materials needed: PVA (glue), knitting needle or other thin rod (such as bamboo or plastic), brush, waxed paper, bone folder, press board, covered brick.

- Arrange the book on its back so that you will be able to insert the knitting needle under the endpaper along the hinge
- Apply a thin coat of PVA to the knitting needle using the brush (you want enough to cover the needle but not so much that the PVA is dripping off)
- Carefully insert the needle into the loose hinge trying not to get any PVA on the outside of the hinge. Slowly remove the needle depositing the adhesive. Be sure not to get any PVA onto the backbone of the text block!
- If the space is large or you do not feel like enough PVA is present, repeat this procedure until there is enough adhesive. (If you aren't sure, it is best to adhere to the less is more policy. You can always go back and add a little later, but if you use too much glue and accidentally glue the book shut, then you'll need to buy a new book.)
- Use a bone folder to work the endsheet down into the hinge.
- Insert a piece of wax paper and close the book.
- Work the bone folder into the groove. Place a clean knitting needle or other thin rod into the groove then put the press board and brick on top of the book while it dries.
- Repeat on other side if necessary.



Repairing a Broken Hinge/Textblock (Simple method)

My repair video: <https://www.sckls.info/services/continuing-education/video-recordings/basic-book-repair-repairing-a-broken-hinge>

An example repair can be seen at: https://youtu.be/zZE9sN_hTVc

Materials needed: PVA (glue), brush, waxed paper, Single Stitched Binding Tape, Scissors, X-Acto Knife or box cutter, bone folder, press board, covered brick.

- If the flyleaf is still attached to the cover of the book, remove it with a sharp blade before proceeding.
- If the hinge is not fully broken, cut it open with a sharp blade. At this stage, the open cover should lie flat on the table.
- Carefully trim away any excess material.
- Glue down any loose material in spine or cover before proceeding and let dry completely. The end sheet needs to be securely attached to the cover.
- Cut the Single Stitched Binding (SSB) Tape slightly smaller than the length of the textblock.
- Brush PVA on one side of the SSB Tape. Apply the glued side of the SSB Tape around the edge of the textblock with one tab attached to the spine and one tab attached to the front (or back) page of the textblock.
- Smooth the tape with the bone folder and wipe up any excess glue. Leave the book open and let the glue dry completely.
- After the first part of the repair has dried, insert a strip of waxed paper between the two tabs of the SSB Tape in the spine area. Place another sheet of waxed paper on top of the textblock between the two tabs there.
- Brush PVA onto the exposed tabs of SSB Tape. Next, bring the cover into place along the row of stitches in the SSB Tape.
- Use a bone folder to smooth one tab of the SSB Tape to the inside of the cover of the book. Wipe up any excess glue.
- Close the book and firmly run the bone folder along the outside of the spine to attach the 4th tab to the inside of the spine.
- Place a weight on top of the book and let the glue dry completely. Once the glue is completely dry, you can remove both pieces of waxed paper.

Resources

Books

Basic Book Repair Methods. Abraham A. Schechter. Edgewood, CO: Libraries unlimited, 1999. ISBN 1563087006.

Book repair. 2nd ed. Kenneth Lavender. How-To-Do-It Manual for Librarians #107. Neal-Schuman Publishers. 2001. ISBN 1555704085

Bookcraft: Techniques for Binding, Folding, and Decorating to Create Books and More. Heather Weston. Quayside Publishing Group. 2008. ISBN 9781592534555

Preservation and Conservation for Libraries and Archives. Nelly Balloffet and Jenny Hille. Chicago: American Library Association, 2005. ISBN 0838908799

Books: Their Care and Repair. Jane Greenfield. New York: H.W. Wilson Co., 1983. ISBN 0824206959

Preservation of Library and Archival Materials: A Manual. Sherelyn Ogden, ed. Andover, MA: Northeast Document Conservation Center, 1999. ISBN 0963468529

Videos

Basic book repair with Jane Greenfield. 30 min. H.W. Wilson. Introduces necessary tools and five repair techniques.

Library preservation: Fundamental techniques 6 tapes. **National Preservation Program Office, Library of Congress**. A series of training videos illustrating simple conservation and repair procedures for library materials

YouTube Videos

Not all YouTube Videos show good book repair practices! Use good judgement and never use Elmer's Glue, Glue sticks, or Scotch Magic Tape to repair books!

Web Sites

<https://www.youtube.com/playlist?list=PLaYkiBmG7yzBUQmyEFPhYxrzMaCphBchh>

You can also go to youtube and type in Demco Collection Repair and find the 13 video illustrating the repairs.

<http://www.library.state.ak.us/hist/conman.html>

Conservation Book Repair: A Training Manual by Artemis BonaDea, from the Alaska State Library. (A large file but downloadable)

<http://www.philobiblon.com/bkrepair/BookRepair.html>

Three basic book repair procedures. Well illustrated.

<http://www.loc.gov/preserv/>

Library of Congress Preservation page with links to pages about caring for various types of collections.