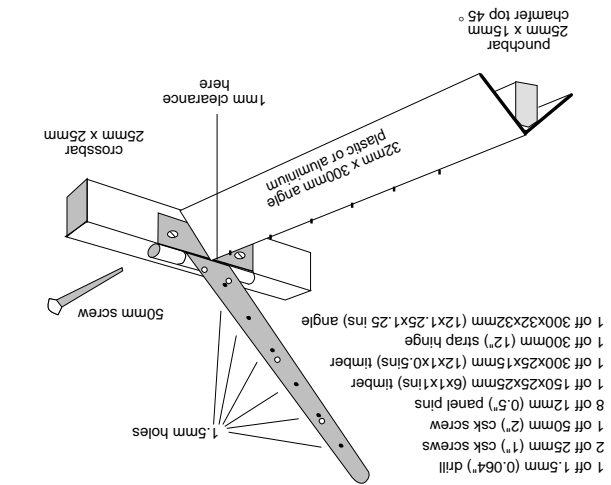


After all the sections have been punched, place the first section, face down, pointing to the right on a piece of plate glass, which should overhang the bench about an inch. Open the section, fitting the upper pages, and slide a draughtsman's clamp over both the glass and the lower pages. Place a length of dowel or a knitting needle through both clamps, thread a length of cotton into a needle and insert into the top hole on the right. You may find sewing easier with an upholsterer's small curved needle but, to avoid splitting the thread, do blunt the needle by rubbing it against a stone.

Section Sewing

To use the punch, place a folded section over the pins; jog it level with the crossbar; hold against sides of the angle, and lower the hinge to punch the holes. Two panel pins in the crossbar may prevent any sideways movement of the paper. A sixteen page section can be punched easily and accurately. Traditionally, the top and bottom holes are supposed to be level with the first and last lines of the text block on the page. The suggested measurements should make the top and bottom different distances from the edge of the paper. This makes the accidental sewing of a section upside down almost impossible.



- 1 Score a centre line on a strap hinge and mark 16mm from the end.
- 2 Punch centres at 32mm intervals and drill 1.5mm holes in strap.
- 3 Position hinge to fall backwards and rebate crossbar for hinge flap. Leave 2mm vertical clearance between hinge and angle for depth of paper.
- 4 Screw outer holes to cross bar and drill centre to spot through the hole.
- 5 Position both bars and use the screw to spot through the hole.
- 6 Remove the punch bar and drill the end for the centre screw.
- 7 Screw punchbar and crossbar together, position angle, and lower hinge.
- 8 Popmark through pinholes, remove angle and make tiny sawcut on marks.
- 9 Replace angle, lower the hinge and drill 1.5mm holes 5mm deep.
- 10 Tap panel pins a little way into the punch bar and cut off the heads.
- 11 Remove pins and then replace with points upward.
- 12 For safety, tap pins level with closed hinge; resharpen points.

Make a Sewing Punch

cut after printing both sides

TURN THE PAPER HERE BEFORE PRINTING THE REVERSE



In laser printed folios, I leave the first page of the first section and the final page of the last section of sewn books as blank fly leaves. These may be partially pasted down for paperbacks, completely pasted as end papers for hardbacks, or incorporated into proper 'made' coloured end papers. The method has the advantage that if the binding goes wrong, they can be cut away and replaced by tipped-in end papers for insertion into a new cover. Neither the last printed page nor the half-title page is lost, which would otherwise happen if the fly leaves were not there.

'Made' endpapers are pasted over the entire area of the first and last pages and nipped in the press to dry, with waxed paper or acetate under each pasted page to prevent those beneath from cockling with the damp.

'Jointed' endpapers have a W crease at the fold made by folding once, then folding backwards over the edge of a ruler and then once more forwards, so that each inverted V of the W is about an eighth of an inch or 3mm wide. They are used for large books that receive a great deal of handling, such as music scores. If the cover is bent backwards through 270 degrees the endpaper joint should not tear.

The following addresses may be helpful.

- Five Seasons book—white recycled paper*
John Purcell Paper, 15 Rumsey Road, London, SW9 0TR. 0171 737 5199
- Bookcloth*
Evans Textiles Ltd., 4 Thorncross Close, Manchester, M15 4LZ. 0161 832 4137
- Bookbinders' glues, tools, leather, and materials.*
Hewitt & Sons, 28 Metro Centre, Park Royal, London, NW10 7PR. 0181 965 5377
- Bookbinder's Warehouse Inc. 31 Division St., Keyport, NJ. USA. (732) 264 0306
- TALAS, 568 Broadway Suite 107, New York, NY., USA. (212) 219 0735
- RELMA, 3 rue des Poitevins, 75006 Paris, France. 01 43 25 40 52

References to other suppliers would be welcome.

Thermal and Sewn Binding

A TINYHELP
for Self-Printing Books

3

Compiled by
David Byram-Wigfield

TinyHelp 3 describes thermal binding techniques for short-run production as well as an effective method of sewing sections together.

One advantage of laser printing books is that the pages can be produced as folded folios. Groups of four folios containing sixteen pages may be nested inside each other and sewn as sections for traditional binding. Alternatively, any number may be stacked side by side and thermally bound by applying heat to the glued spine. The folds provide a greater gluing area than normally cropped commercial 'perfect binding' and the pages remain flat when opened.

Cappella Archive
Book on Demand Limited Editions

Foley Terrace : Great Malvern : WR14 4RQ : UK
© 1998 David Byram-Wigfield. All rights reserved.
byram@cappella.demon.co.uk
http://www.cappella.demon.co.uk

PostScript is a trademark of Adobe Systems Inc., which may be registered in certain jurisdictions.
Typeset in Direct PostScript by the Cappella TinyDict

Finally, a word of warning. You can only successfully thermally bind paper that is short-grained. That is to say, paper which has the grain running parallel with the fold. Office stationery has the grain running vertically and the heat of the thermal binder will make the spine curl. Find an offset printer who has a supply of SRA2 paper (45 x 64 cms) and ask them to cut out to size *short-grained*.

Remove the outer supports; wrap the spine in some clean waxed paper, and put the book block under a weight. Don't make the pressure too heavy or the sections may slope and distort the spine. If you use a nipping press, make sure the book block is placed centrally. nip gently to compress the folds a little and remove straight away. A piece of plate glass makes a good weight whilst the glue is drying.

Wrap waxed paper around the glued spine and the aluminium or card supports; place upright in the binder and switch on. Cook for about a minute, then remove and rub the spine down with a bone folder or some smooth plastic, such as the top of a ball point pen.

Wrap waxed paper around the glued spine and the aluminium or card supports; place upright in the binder and switch on. Cook for about a minute, then remove and rub the spine down with a bone folder or some smooth plastic, such as the top of a ball point pen. bench clamp can be made for production work.

From the folds with a bone folder, put a piece of aluminium or card support on either side, and hold everything together with an elastic band—the kind the postman drops on the front path is ideal. The band should not be too strong, or it will bow the supports outwards and let glue to dribble over the end papers.

pieces exactly the same size as your folded pages; the kitchen scissors will do if no one is looking; and then take the sharpness off the corners with a file. As an substitute, use two pieces of stiff card lined with acetate to prevent the glue sticking.

Thermal Binding

Commercial binding folds sixteen, thirty-two, or sixty-four page book impositions into sections or signatures, which are either machine-sewn together for good quality work or 'perfect bound' for cheaper paperbacks. This involves trimming away the spine of each section so that the glue may reach the back edge of every page, or milling the spine with a series of grooves for the same purpose. The now separated individual pages are held in a clamp and glue applied which is simultaneously heated.

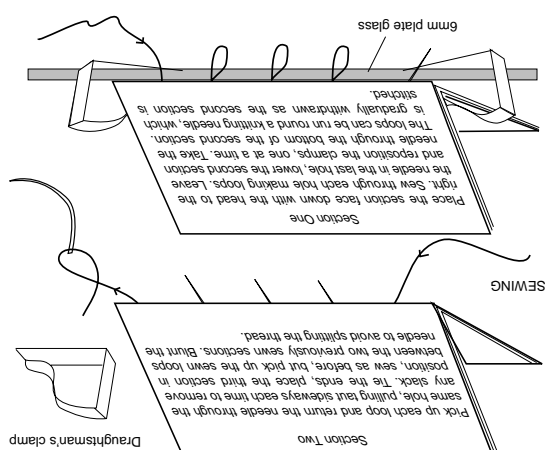
The area of paper available for the glue is so tiny that pages easily become detached, and only by using modern flexible adhesives has the method improved. Fortunately, laser printed pages are only folded once, which means that the spine does not have to be cropped, and each folded pair offers a much greater area for gluing than occurs with the commercial process. The spine may be made stronger still with a muslin lining, and the book will open flat, which most perfect bound books cannot do.

The principle is simple. The printed and folded leaves are stacked in their correct order; sandwiched between aluminium or acetate-faced card; glue is applied, and the spine is heated. A non-stick material such as waxed paper is needed to prevent the book block sticking to the heating surface and it has to be held upright to stop it falling over. Several thin books may be bound at once, using page-sized pieces of acetate to prevent them sticking together.

Whilst books have been thermally bound in a frying pan, an ordinary office heat binder will do for our purposes. These are intended to join sheets of paper in a supplied folder which has a strip of glue already in place, but you can throw those away. The smallest heaters will take book blocks of just under an inch, or about 20mm wide, and have a timing device to regulate the heat. If you want to experiment first, use an upside down domestic iron on its coolest setting.

Go to a plumbers' merchant and ask for a small piece of the aluminium sheet that is used for roofing or backing gas fires. Cut two

Pick up each loop in succession, sliding the dowel sideways for each one, and returning the needle through the same hole. Pull the thread taut sideways each time from hole to hole; do not pull towards you or



Take the needle through the lower hole of the second section and pass out through the next, sliding the dowel out of the matching first section loop so that the needle can pass through. Re-insert the needle through the same hole and pull the upper thread taut with the side of your hand. Tension the lower thread by pulling on the dowel to take up the slack.

Place the needle through the lower hole of the second section and pass the clamps in the centre as before. Take the needle through the lower hole of the second section and pass the clamps, one at a time. Place the second section on top and insert needle halfway through the last hole, close the section and reposition gradually withdrawn when the second section is stitched. Leave the

the paper may tear. When the needle emerges from the top hole, put the dowel aside, remove the clamps and reclamp both fully closed sections to the glass. Pull both threads taut, tie the ends, and clamp the third section in position. Sew as before, picking up the stitches between the two previously sewn sections. Try to get the first and the final knots to lie in the joints between the sections. Put under a weight and leave overnight.

At this point, traditional bookbinders 'round' the spine, a process which is designed to minimize the forward droop of the pages when the stitches slacken as the paper ages with changes in humidity. You may read about the process in most books on the subject, but it is not needed for stitched or thermally bound paperbacks. Give the spine a coat of glue, wrap in waxed paper, and put under a weight.

Soft covers only need gluing to the book block, but a thin strong muslin or linen is needed to attach hard covers to the spine. I use 'Vilene'. This is an fabric sold for dress-making, which makes a very strong joint. It comes in various thicknesses, but the thinnest is quite strong enough for most books. The lining should overlap the sides by about 25mm, or one inch, but check that you cut the Vilene so that any stretch is *lengthwise* up the spine, not across.

Glue the spine a second time and place the lining along the spine, making sure the rougher surface is facing inwards if it is the iron-on variety of Vilene. Wrap in waxed paper between two acetate or aluminium side sheets, heat in a thermal binder, or run the iron over the spine. Remove the sheets and paper and allow to cool under a weight once more.

End Papers

In traditional book production, the casing and its attachment to the book, or 'forwarding', was a separate craft. The folded end papers were not part of the first or last printed sections but attached later by tipping them on with a thin line of glue. They were frequently decorated or marbled to disguise the overlap of the muslin hinge and the turn-in of the covering material on the inside of the cover.

fold backwards fold forwards and glue here, or staple from the other side