

# MAKEREADY

●  
*... the details  
and  
the techniques*



CROMWELL PAPER COMPANY

*Photographs courtesy of The Carnegie  
Institute of Technology, Pittsburgh, Pa.  
and Vandercook Research, Inc.,  
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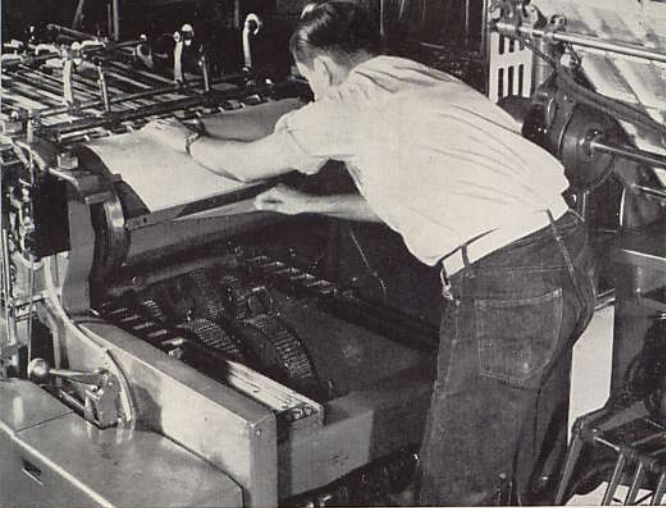
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## FOREWORD

The Cromwell Paper Company offers this booklet as another of its services to promote better printing. The booklet has been designed to:

- Help the printer teach apprentices.
- Be a reference to students of graphic arts classes.
- Be a handy reference for pressmen and plant managers.

To assure the best work in printing, don't just ask for "tympan," ask for  
C R O M W E L L T Y M P A N



Pressman puts new packing on the Miller SG 19 x 25 Automatic.

## MECHANICAL MAKEREADY:

### Better Quality at Lower Cost

*Makeready* corrects

1. Inaccuracies in printing surfaces
2. Adjusts printing surface heights for proper impression pressures.

Mechanical makeready methods are designed

1. To prevent errors during preparation of forms
2. To provide the various heights which will permit printing these forms without makeready.

The second point listed above is known as "premakeready," which is pre-pressroom compensation of the plate to assure proper pressure for dark areas, and an even impression from center to edge.

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Premakeready depends on precision machines and tools, materials of standardized quality, skilled workmanship, and careful attention to detail.

The success of mechanical makeready depends upon attention to tolerances in the vicinity of .001 inch.

## THE PRESS

To keep your press in top running shape:

1. Keep press parts clean and well lubricated.
2. Check to keep bed level and flat.

You can check bed inaccuracies by saving and comparing the first press proofs of twenty-five different, consecutive forms. Heavy or weak areas will indicate such bed inaccuracies.

3. Correct bed inaccuracies with a permanent overlay sheet buried deep in the packing.
4. Check presses at regular intervals for wearing of parts, vibration, or settling of the floor underneath the press.

## ROLLERS

Here are three tips on the use of rollers which may prove helpful:

1. Use only best-quality composition form rollers, and keep them adjusted accurately.
2. Distributor and ductor rollers of rubber usually give longer life and easier maintenance.
3. Where frequent color wash-ups are necessary, vulcanized oil

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rollers may be more satisfactory for distributors than rubber, because their smoother surface is easier to clean.

## TYPES

For dependable results with type forms:

1. Proof foundry and Monotype composition on precision proof presses.
2. Use standardized calendered paper, to check for broken or worn letters.
3. Proof type from the bed plate of the press, not from galleys.
4. Check type heights regularly with a micrometer.

An interesting sidelight to precision printing with Monotype composition is the use of the Letouzey method, in which letters of heavy printing surface are some ten-thousandths of an inch higher than letters with little printing surface.

## SLUGS

Check slug cast composition on a precision proof press, too. Be on the lookout for:

1. Cold or hot slugs, porous slugs
2. Metal fins between characters
3. Unaligned letters caused by damaged matrices.

Careful attention to knife settings on slug-composing machines will help to eliminate many inaccuracies.

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## SPACING MATERIALS

If your plant is not air-conditioned, use wood spacing materials with care. Metal which has been checked for accuracy of dimensions and squareness will retain its size despite humidity changes, while wood is subject to swelling and shrinking.

## ENGRAVINGS

Check your photo engravings and electrotypes for:

1. Shallow etching
2. Under-cut dots
3. Surface damage
4. Type height
5. Warped bases.

Ask the plate maker to make his test proofs on the paper which will be used in printing the job. *Most troubles with new plates come from trying to get by with poor-quality plates.*



Check engravings for proper dot formation.

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## PLATE MAKEREADY

Mechanical makeready of plates is done by skilled craftsmen, who are experienced in handling plates on the press. There is no substitute for experience at this point. For example:

1. The depth of etching may be tested with a halftone meter, but this test will not indicate dots under-cut in etching.
2. Undercutting makes electrotyping virtually impossible, and results in serious press difficulties.
3. Plate type height checked with a Hacker gauge will show high or low spots in the mounting. These should be eliminated by underlaying or interlaying.
4. Compensate for dense and light printing areas at this time.

Check plates for type height. Dial readings reveal high and low spots, which are eliminated by underlaying or interlaying.



A simple patent base mounting interlay can save much makeready. More intricate interlaying is sometimes required.



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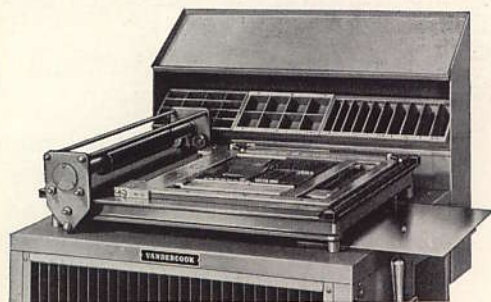
## MOUNTING

The height of a plate depends on its mounting.

1. *Wood mounting*: wood mountings are in general use, but should be checked for warpage.
2. *Patent base mounting*: a well-made electrotype, carefully interlayed on a patent base may often be printed with no overlay. Check patent bases as new units are purchased, to be sure that all pieces are exactly the same height. Clean all patent bases regularly to prevent the accumulation of ink and dirt on top or bottom surfaces.
3. *Vandercook Base and Backing*: a new development of Vandercook Research, Inc., the mounting consists of a grooved metal plate, cast from type metal and planed to height in the printing plant. The plate is attached to the base with a Thermo-Plastic Bonding Film, eliminating nails and "spring back."

## PAGE MAKE-UP

Successful page make-up requires careful control of all materials used in the form. Two modern developments to simplify page make-up are:



1. The Vandercook make-up gauge.

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With this gauge, forms are exactly square and exactly the same size, and can be justified and tested for lift, under gauge pressure. The Vandercook gauge simplifies multiple color or register forms.

2. The *Taylor Registerscope* utilizes a half-silvered mirror to impose the reflection of a proof of the key form on subsequent forms being made upon the stone. This equipment aids in alignment and breaking for color.

## PAPER AND INK

Precision production depends upon the proper selections of paper and ink. The correct selection of paper and inks designed to print upon this paper is a "must" for best results. In case of very unusual jobs, you can send sample sheets of the paper with complete specifications of the job and press to an ink manufacturer, for formulation of correct ink to the paper.

## AIR-CONDITIONING

Air-conditioning equipment which controls humidity, cleanliness, and movement of air can be very helpful to the printer. Ideal year-round conditions would include:

1. A temperature of 72° F., and
2. 50% relative humidity.

Changes in room temperature and humidity:

1. Cause wood furniture and mountings to shrink, swell, and warp, leading to register and justification troubles.
2. Affect paper, inks, and rollers,

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adding to makeready and running problems.

## USE OF ELECTROTYPES WITHOUT PRESS OVERLAYS

Electrotype plates can sometimes be run without press overlays. This is widely practiced on rotary presses, and can be adapted to cylinder work, particularly if the form consists entirely of electrotypes mounted on a patent base. Plates so prepared have:

1. Solid areas .002 inch above type height
2. Middle tones type high
3. Highlights .002 inch below type height.

This is done by cutting face and back matrices in exact reverse to one another, from proofs made on a laminated paper. The paper has several thicknesses, so that different tones may be built up, or cut out as needed. The cut matrices are registered on the face and back of the plate, and enough pressure is applied to force the highlights down and the solids up. After pressing, matrices are removed and the back of the plate is shaved to remove pressure marks; the plate is thicker in solid areas than in highlights, exerting the needed additional pressure for printing solid areas.

We have just considered the general factors which will make a printing job easy or difficult for the pressmen. Now let's consider press preparation in some detail.

## PRESS PREPARATION FOR MAKEREADY

*The order of press preparation for makeready depends upon each press-*

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