

## Printing Processes and Their Relation to Type

The "battle of the processes" is a perennial subject for discussion and debate whenever printers get together. In this carefully condensed survey, Linotype's Director of Typographic Development emphasizes the general usefulness of Linotype composition in all three processes, with brief comments on the various technical factors that bear on the selection of faces for paper surfaces and to meet process limitations.

FOR THE PURPOSES of this Manual, there are three methods of getting ink onto paper which in the final analysis is the aim of all graphic art functions.

Specialized reproductive methods such as mimeograph, hectograph, xerography and similar methods, are disregarded.

The element which distinguishes each of these three basic processes is the ink-bearing surface. The order in which they are discussed is arbitrary. No one of the processes can be said to excel either of the others. Each is the best in certain situations; all make use of the product of the Linotype machine.

### (1) Letter Press—*Relief printing* from a raised surface

THIS is the printing process originally developed with movable type in the early fifteenth century by Gutenberg from much older sources going back to ancient China and as yet unchanged in basic principle.

The raised surfaces of cast letter forms are covered with ink, which, under pressure, is transferred to paper to provide a readable or recognizable print.

A letter-press surface can be Linotype or other slugs, individual type, photoengravings or duplicate plates of this original material prepared by electrotyping, stereotyping, or photoengraving.

On short run work this process is supreme and where long runs dictate the necessity for duplicate printing plates they are easily provided in this process.

The combination of rotary presses and stereotyping makes this process the fastest of the three and therefore almost exclusively used in the production of newspapers.

Any type face can be used in this process, dependent on the paper stock required.

Letter press is identified by impression on the re-

verse of a printed sheet, and by the sparkling contrast of clean black ink with the paper. (But the perfection of the offset process often produces such crisp, sharp blacks that experienced printers have difficulty in distinguishing between the two, particularly when coated papers are used for each.)

### (2) Offset Lithography—*Planographic printing* from a chemically treated, level surface

DIRECT LITHOGRAPHY (from stone or metal) is today used solely as a fine arts process and where planographic printing is discussed, offset lithography is normally the process involved.

Based on the physical fact that oil and water do not mix, this process depends for its printing surface on the preparation of a zinc or aluminum plate to receive ink where an image is desired and to repel it where white space or back-ground is required.

As in intaglio, this plate preparation can be by hand, but it is more normally effected by photomechanical means.

Three platemaking methods are possible, i.e.: albumin, deep-etch, and an electrochemical method involving bi- or tri-metallic plates prepared by deposition or etching. It is sufficient to know that these methods are listed in the order of their performance in terms of press run. The albumin plate may become defective after a run of a few thousand, while the tri-metallic plate has been used for millions of impressions.

The printing or ink-receptive image on the plate can, in this process, be line or halftone, or both, depending on the requirements of the job. The type, therefore, is not subjected to any "screening." Due, however, to the constant presence of water during the press run, a condition which tends to weaken the image, and due to the possibilities of distortion inherent in the photomechanical

cal preparation of negative and plate, certain characteristics should be avoided in the selection of type.

It should be stated first, however, that *any* type can, *with careful control and expert handling*, be used in offset. For economical production, however, the types which have strong serifs, or none, and carry lots of color, are best. These can be handled quickly and safely, even by less experienced workmen.

It is sometimes difficult to identify offset printing as such. The color of ink is the same as in letter press, and the dot structure in halftones is also similar to that of letter press. Absence of any impression on the reverse side of the printing is sometimes a clue, but this is not always conclusive in the face of "kiss" impressions by letter press. One sure indication of offset is the printing of a fine screen halftone on other than coated or supercalendered paper. If the printed piece is a rough-finished stock and contains fine screened halftones it is almost without question offset. Another occasional indication of offset is "scum" or dirtying of normal white areas on the page.

Offset use is spread from the very finest of reproductive work in four and more colors to the very cheapest kind of printing by photography, from existing copy, or from such substitutes for type composition as the typewriter.

In the quality range, offset requires the use of type in order to provide a proper atmosphere to the printed piece. Offset is definitely competitive with letter press, but in its better forms is equally a user of our product. It should never be considered as an inferior process or as a cheap substitute for letter press.

The fact that, in offset, the printing ink is transferred from the prepared plate to a rubber surface and then to the final surface makes the process effective on all materials. Leather, cloth, tin, burlap, paper, wood, and many other materials are printed upon by offset, though sometimes by letter press with rubber plates.

Offset platemaking requires two apposite forms of copy. In the deep etch and electrochemical processes a film positive is used. This protects the desired printing image and allows the non-printing area to be etched away. For this form of platemaking it is possible to use reproduction proofs on transparent film and so eliminate the possibility of distortion inherent in the photographing of the printed proof and the making of a contact positive from the resulting negative.

What is true of the film proof for gravure also holds true in this process. The success or failure of the plate is determined by the clarity of the type and every care should be taken to assure a satisfactory reproduction proof.

Albumen plates require negative copy and so conventional proofs on paper are needed. Exposure in a camera gives a negative to whatever enlargement or reduction is required and the only point to be borne in

mind is that photography by reflection is more productive of distortion than is the projection method and great care must be taken in providing a good proof. If possible it is well to allow for a reduction from copy size to negative size, although any considerable reduction of composed type changes the character of the type.

### (3) Gravure—*Intaglio printing from an incised surface*

IN THIS PROCESS a smooth metal surface is engraved or cut into where it is desired to carry ink for transfer to paper on a press. This cutting may be done by hand as in the case of social stationery, or photo-mechanically in the case of gravure, be it sheet-fed or the more familiar rotogravure.

The hand-engraved technique in this process is rapidly becoming a lost art and as our product is not involved it shall receive only this passing mention.

In the photo-mechanical preparation of printing plates or cylinders for gravure the entire printing surface is broken into square dots of the same size but of varying depth. It is the depth of dot, and therefore the amount of thickness of the fluid ink resulting, which determines the tonal value of any given portion of the printing surface. Shallow dots give light tones in high-light areas, and deep dots give solid shadow tones.

In this process, as the entire area is screened, so must any type blocks used also be screened. Thus, what in other processes might be a face with bold characteristics, here may become weakened. The ink used in this process must be fluid enough to flow into the varying depths of the dot structure and to leave the level surface of the plate, where no ink should be carried, clean after wiping by the "doctor" blade. While black inks are available for gravure, the photographic qualities are sought with the brown and green colors which are characteristic of the process. They tend further to weaken the type "color." Therefore in recommending a face for use in gravure it must be borne in mind that a heavier face must be selected to allow for these "thinning" effects.

The preparation of plates and cylinders for gravure is expensive and the process is therefore used only for long runs or for cases where the soft tonal values obtainable are worth the expense. The process lends itself readily to printing on difficult materials, such as cellophane and other plastics, and is used extensively for printing such wrappers as those used for bread and other foods.

Intaglio printing may be identified by the raised surface of the printing. In social printing, do not be misled by the so-called process engraving which is produced by sprinkling a resinous powder over the freshly printed impression on a card and subjecting it to heat. This kind of imitation can usually be detected by an

impression of the type on the back of the card or by the fuzzy appearance of the letter under a glass.

The type blocks for incorporation into gravure forms usually come to the plate maker in the form of glassine or cellophane reproduction proofs although the more normal paper proofs may sometimes be accepted. It will be found that in the preparation of gravure proofs where makeready is impossible due to the surface on which the printing must be done, slugs cast from worn or defective matrices, or on machines out of adjustment, cause considerable difficulty. However, before assigning the cause of poor reproduction proofs to matrices it is essential to eliminate the possibility of machine troubles, ink and proof press adjustments.

Gravure printing can be identified by the characteristic solvent smell of ink, as well as the sepia and greenish tones often used in one-color work. Under a glass, gravure appears as an all-over pattern of small square dots of the same size. These can best be seen in highlight areas. The screen texture can usually be noted in any type matter that is in gravure.

It is perhaps in letter press that the greatest care is necessary in the specification of types. Paper stocks available range from spongy antique book papers, which thicken types appreciably, to hard-surfaced coated stocks which reveal every finicky characteristic of the letter. Probably the first fact to be determined in

the recommendation of a type face therefore is what paper is to be used.

Printing in color also has a great bearing on type specification. If Spartan Light is to be used in black, use Medium for a red, and Heavy for a light green.

The information given above in regard to paper and color applies equally to all three processes. In the last two paper stock is not as important, but it is a definite factor.

Study of the table appended, in conjunction with the specimen book will reveal the basis of type selection. The list is not complete but is a guide to the problem. Papers shown for gravure printing would normally be restricted to the sheet-fed process, used for shorter runs of fine book illustrations and such high-grade work. Rotogravure demands special, highly calendered lightweight papers whose surface would carry any kind of type except that the gravure screens are so detrimental to type.

In the first example below the amount of letterpress impression required to overcome the rough texture of the paper will thicken the type. In the offset there will be no thickening, so start with the required weight. In gravure the type will be weakened by screening, so allowance must be made by use of a heavier face.

In the last example no impression is allowable, so for both offset and letter press use the required weight.

<i>PAPER FINISH</i>	<i>LETTER PRESS</i>	<i>OFFSET</i>	<i>GRAVURE</i>
Eggshell	Bodoni Book	Bodoni	Bodoni Bold
Antique	Caslon Old Face	Caslon 137	Caslon 2
Machine Fin.	Spartan Book	Medium	Heavy
English Fin.	Fairfield	Fairfield	Fairfield Medium
Process Coated	Caledonia	Caledonia	(No use of Coated)
Coated	Bodoni Book	Bodoni Book	(No use of Coated)

## Photo Composition

A BRIEF WORD ON how the film product of the photo-composition machines is produced may be found helpful in discussing this new development with customers.

Basically all methods employ a camera in place of a casting mechanism.

The letter patterns to be photographed can be in matrix form for hand or machine composition in the manner of Ludlow, Linotype or Intertype, or similar to the Monotype system where a single matrix of each character suffices. Thus the ATF Hadege Machine is a camera-style Ludlow and the Fotosetter is an Intertype with camera in place of casting mechanism.

Those which employ the handset or circulating matrix retain the flexibility of these methods where

any character may be added at will. The "Monotype" method becomes somewhat limited when special characters are required.

In rate of production the photocomposition device is limited by necessity to the speed of the operator. Certain functions may be considerably faster than metal casting, but composition being done by human hands can only be done within certain limited speeds. The application of tape-controlled keyboards may improve certain phases of the operating speed, but such claims as have been made which indicate "ten times faster than Linotype" must be discounted.

The relationship of photocomposition to the basic processes of reproduction can readily be understood by a reconsideration of the product from the composing room used in each process.

1. *Letter Press*: Normally metal type or a metal duplicate thereof. The film product of the photocomposition machine must therefore be reproduced on metal by photoengraving. This is a slow and relatively costly process. The value of the photocomposition machine as a part of the letter-press process is therefore questionable. Research in the use of light metals, such as magnesium, and the development of a "fast etch," seek to apply the film product to this branch of the industry in view of the existing heavy investment in letter-press equipment.

2. *Offset Lithography*: For the preparation of albumin offset plates a negative is used. If the product of the photocomposition device is a negative it can be used without alteration for the preparation of the printing plate. If the film product is a positive a contact negative will have to be made. This may possibly, though not necessarily, cause distortion and added cost.

For deep etch plates a positive is required. If the photocomposition product is black on clear film it can be used directly for the plate making. In this process the positive should be "wrong reading" in order that the emulsion side of the film will be in contact with

the plate during exposure.

However, it should be borne in mind that as yet in all American photocomposition devices the product is comparable to uncorrected type on a galley. Proofs must be provided, usually by slow and costly photographic methods, such as blue print, ozalid, etc. Then, after proofreading, the film must be corrected by patching or by re-composition and re-photographing.

There can be no question that the image produced on film by photocomposition is crisp and clear and faithful to the original. However, subsequent handling difficulties destroy this original advantage at this stage of development. It is in the field of proofing, correction and makeup that the greatest amount of work remains to be done.

3. *Gravure*: What has been said of offset holds true for this process as well. However, in view of the screening inherent in this process, any gain in clarity of original by use of photocomposition may be somewhat lost. Its use is justified if the gain in clarity of original offsets the loss by screening. In either offset or gravure, if bad reproduction proofs have been a working problem, the photocomposition product will be welcomed.

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## Chart Comparing the Three Major Processes

Prepared and produced by Magill-Weinsheimer Company, color-printers, Chicago, for "The Production Year Book." Copies for use within the Linotype organization were donated by the printers

COMPARING the three major processes, in a chart showing steps from copy to printing press, the Magill-Weinsheimer Company has shown primarily how pictorial subjects are handled. While the chart makes no mention of type, either in metal or in reproduction proofs, that phase of process requirements has been discussed in another unit of this Manual. The chart is included because the composing room and its own special experts are sometimes uncertain about technical differences in process procedures which are illustrated here.

As type men, we are not too much concerned about the "art copy" listed in box 1. The "uses" for the three processes are more significant to us, because some fields make full use of type composition while others use little or none.

The photographic steps, in boxes 2 through 5, may concern type incidentally, but for each process as shown here the type image will be photographic.

Boxes 7, 8, and 9 carry the work forward to 10,

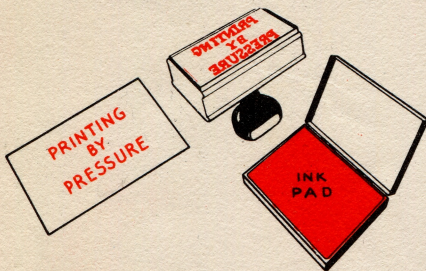
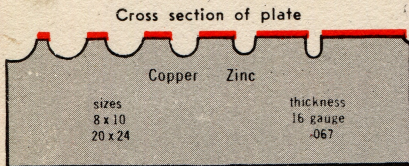
where it becomes either a locked-up form for letter press, or a plate for offset, or a cylinder for gravure.

The press principles in box 11 are based on the product of Magill-Weinsheimer. Thus we find the letter press production shown with the printing of two colors in quick succession on a flat-bed press—a sheet which would then go through again for two finishing colors.

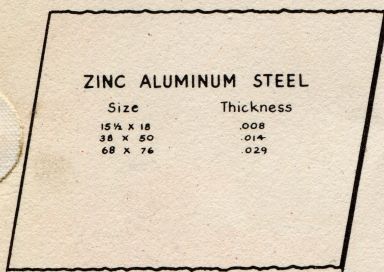
Similarly, the principle of the offset press is shown with a two-color operation on one side of the sheet. Many offset presses function thus, with a few four-color presses in the larger plants.

The gravure diagram, in box 11, shows a web of paper being printed, first on one side, then on the other, in one color as for a newspaper supplement. In four-color gravure such units are worked in quadruplicate, at very high speed with elaborate drying equipment. Thus Collier's Magazine gravure section (with their body type in Linotype Times Roman) are produced in full color at about 50,000 copies per hour.

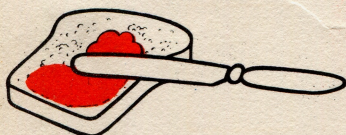
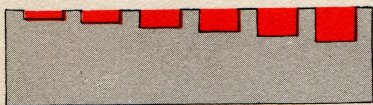
**LETTER PRESS**  
(Relief Printing)



**OFFSET LITHOGRAPHY**  
(Plano Printing)



**GRAVURE**  
(intaglio printing)



**ART COPY**

OIL PAINTING  
WATER COLOR DRAWINGS  
PASTEL DRAWINGS  
KODACHROME  
ECKTACHROME  
CARBRO COLOR PRINTS  
BLACK & WHITE WASH DRAWINGS  
BLACK & WHITE PHOTOGRAPHS  
BLACK & WHITE LINE DRAWINGS

**USES**

WALL PAPER  
NEWSPAPERS  
BOOKS  
MAGAZINES  
CATALOGS  
LABELS  
GENERAL COMMERCIAL

**ART COPY**

OIL PAINTING  
WATER COLOR DRAWINGS  
PASTEL DRAWINGS  
KODACHROME  
ECKTACHROME  
CARBRO COLOR PRINTS  
BLACK & WHITE WASH DRAWINGS  
BLACK & WHITE PHOTOGRAPHS  
BLACK & WHITE LINE DRAWINGS

**USES**

MAPS POSTERS  
DISPLAYS BLOW UPS  
METAL DECORATING BOOKS  
MAGAZINES CATALOGS  
LABELS  
GENERAL COMMERCIAL

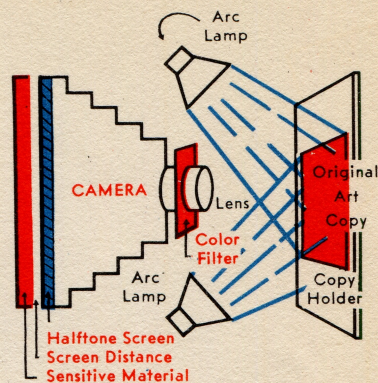
**ART COPY**

OIL PAINTING  
WATER COLOR DRAWINGS  
PASTEL DRAWINGS  
KODACHROME  
ECKTACHROME  
CARBRO COLOR PRINTS  
BLACK & WHITE WASH DRAWINGS  
BLACK & WHITE PHOTOGRAPHS  
BLACK & WHITE LINE DRAWINGS

**USES**

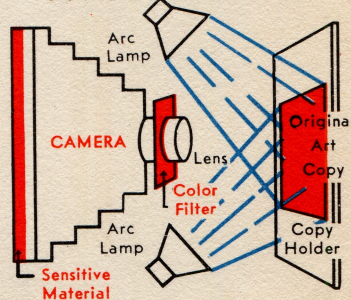
PICTORIAL SUPPLEMENTS  
BOOKS  
MAGAZINES  
CATALOG SECTIONS  
COTTON & SILK GOODS  
METAL FOIL  
CELLOPHANE

2 HALFTONE CUT-OUT NEGATIVES



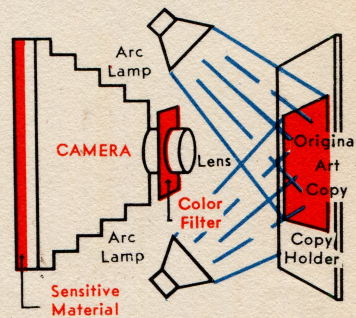
NOTE . . .  
SCREEN IS USED AT THIS OPERATION

2 CONTINUOUS-TONE CUT-OUT NEGATIVES



NOTE . . .  
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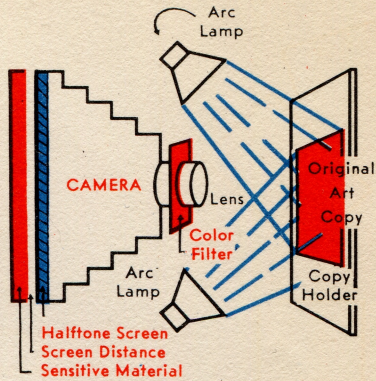
2 CONTINUOUS-TONE CUT-OUT NEGATIVES



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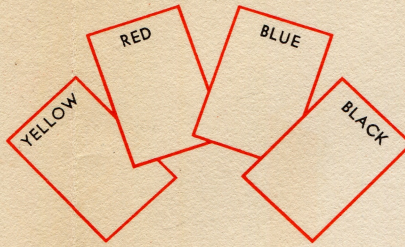
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**2 HALFTONE CUT-OUT NEGATIVES**



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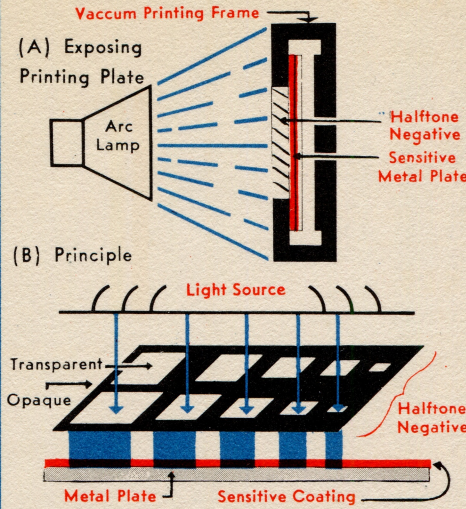
**3 HALFTONE CUT-OUT NEGATIVES**



Brown Print  
for Type  
Paste-Up

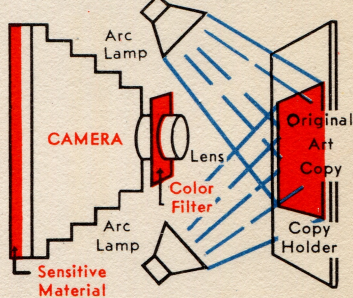
Customer's  
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Type

**4 METAL PRINTING OPERATION**



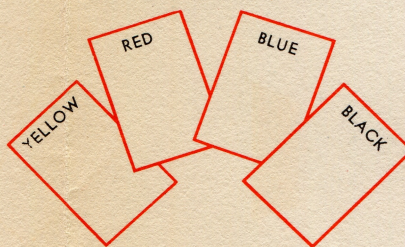
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**2 CONTINUOUS-TONE CUT-OUT NEGATIVES**



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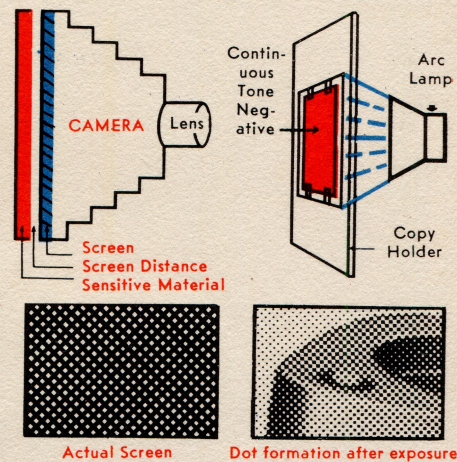
**3 CONTINUOUS-TONE CUT-OUT NEGATIVES**



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for Type  
Paste-Up

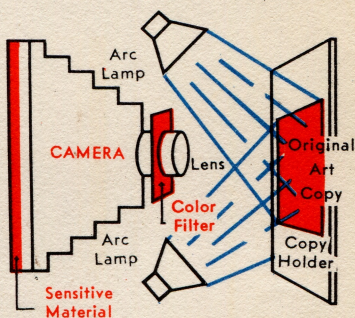
Customer's  
Paste-Up  
of  
Type

**4 HALFTONE POSITIVE OPERATION**



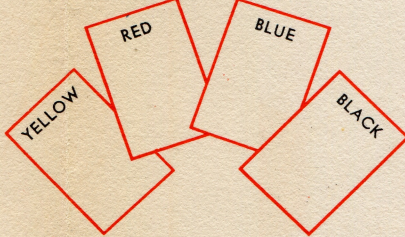
**UPS**  
**BOOKS**  
**CATALOGS**  
**COMMERCIAL**

**2 CONTINUOUS-TONE CUT-OUT NEGATIVES**



NOTE . . .  
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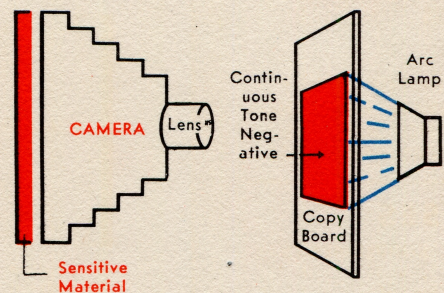
**3 CONTINUOUS-TONE CUT-OUT NEGATIVES**



Brown Print  
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Paste-Up

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Type

**4 CONTINUOUS-TONE POSITIVE OPERATION**

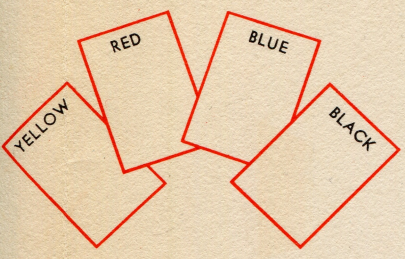


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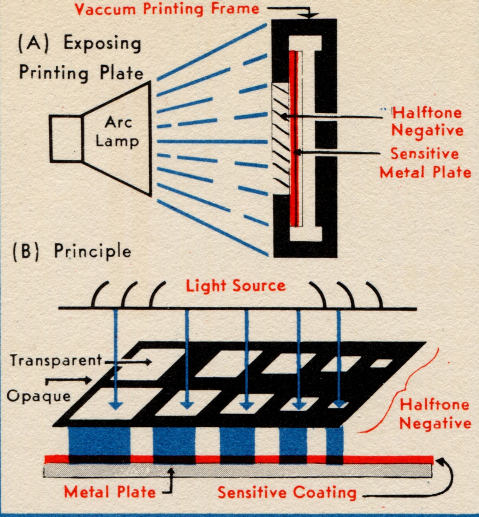
3 HALFTONE CUT-OUT NEGATIVES



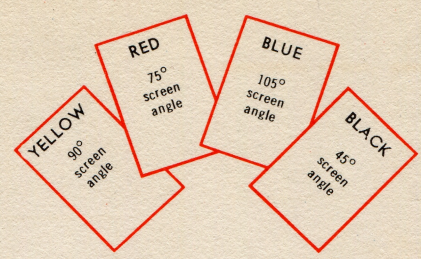
Brown Print for Type Paste-Up

Customer's Paste-Up of Type

4 METAL PRINTING OPERATION



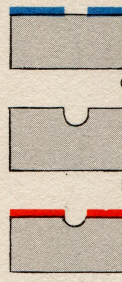
5 HALFTONE ORIGINAL PLATES



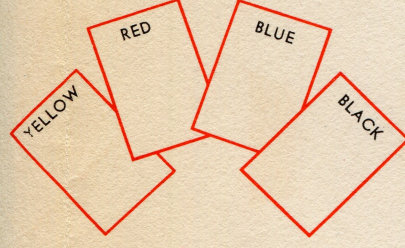
Line Plate of Type

Blue Print

6 COLOR



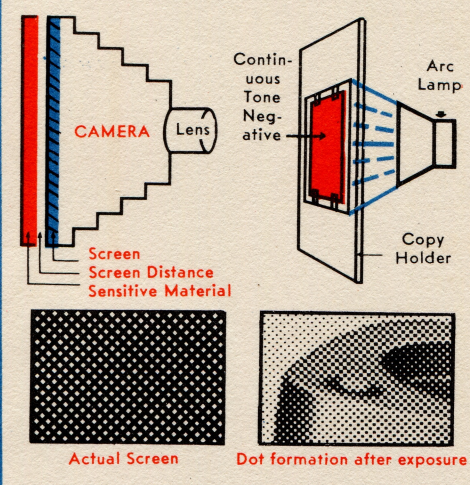
3 CONTINUOUS-TONE CUT-OUT NEGATIVES



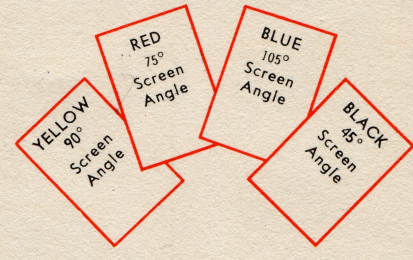
Brown Print for Type Paste-Up

Customer's Paste-Up of Type

4 HALFTONE POSITIVE OPERATION



5 HALFTONE SCREENED POSITIVES for DEEP ETCH PROCESS



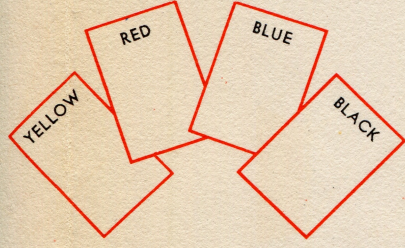
Line Negative from Type Paste-Up

Contact Positive from Type Line Negative

6 COLOR H



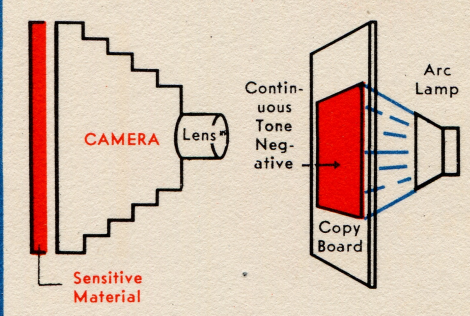
3 CONTINUOUS-TONE CUT-OUT NEGATIVES



Brown Print for Type Paste-Up

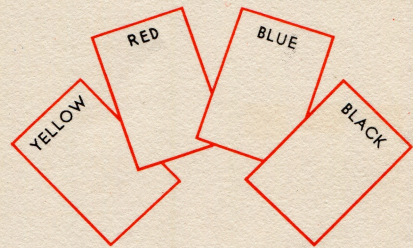
Customer's Paste-Up of Type

4 CONTINUOUS-TONE POSITIVE OPERATION



NOTE . . . SCREEN IS NOT USED IN THIS OPERATION

5 CONTINUOUS TONE POSITIVES for GRAVURE



Negative of Type

Mounted Positive with Type

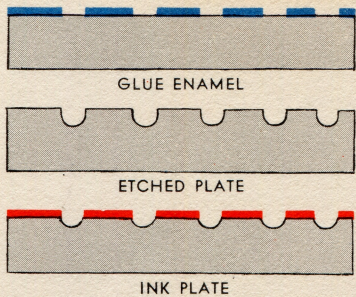
6 COLOR CON



SAME POSITIVE

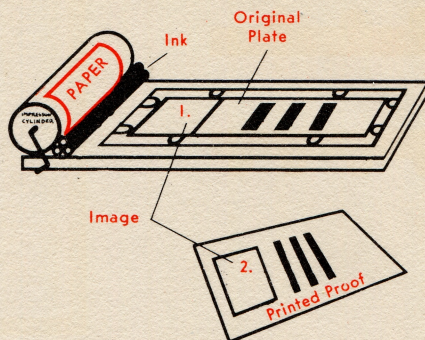
L PLATES

### 6 COLOR ETCHING

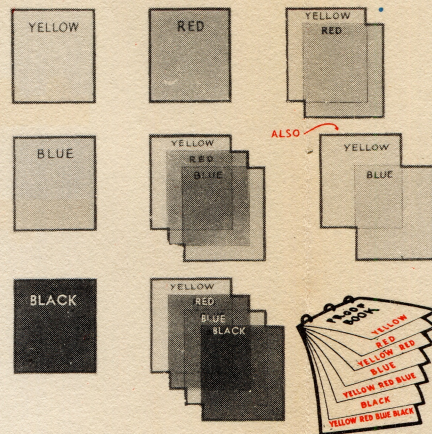


### 7 PROOFING OPERATION

Principle of the Proofing Press

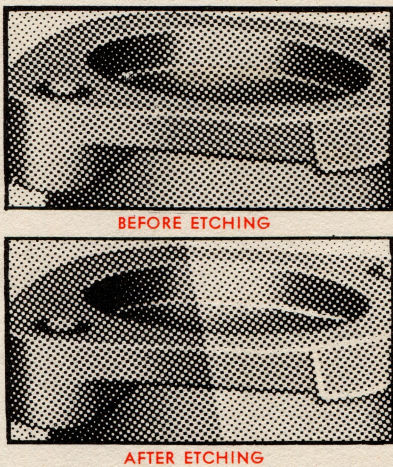


### 8 PROGRESSIVE COLOR PROOFING



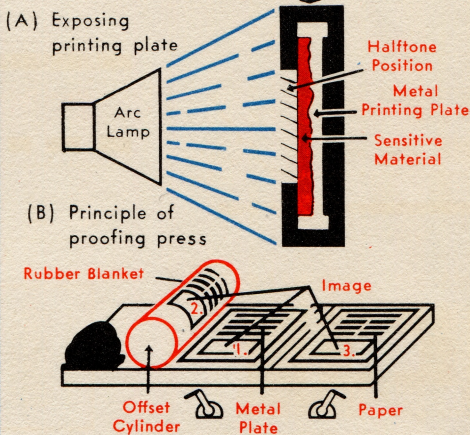
POSITIVES  
PROCESS

### 6 COLOR CORRECTION Halftone Etching

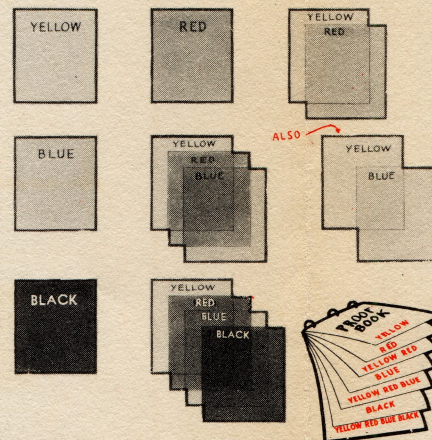


### 7 PROOFING OPERATION

Vacuum Printing Frame

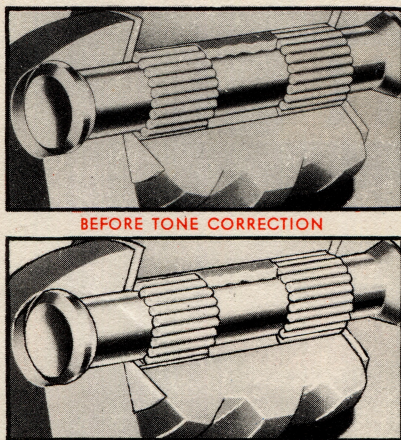


### 8 PROGRESSIVE COLOR PROOFING



POSITIVES

### 6 COLOR CORRECTION CONTINUOUS TONE



### 7

# NO PROOFING OPERATION

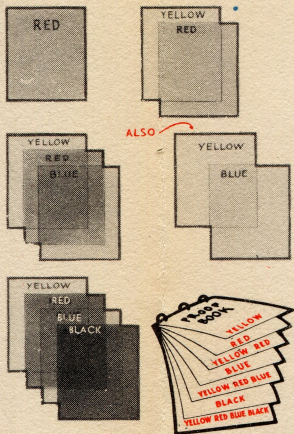
Proofs are submitted from press cylinders before running edition

### 8

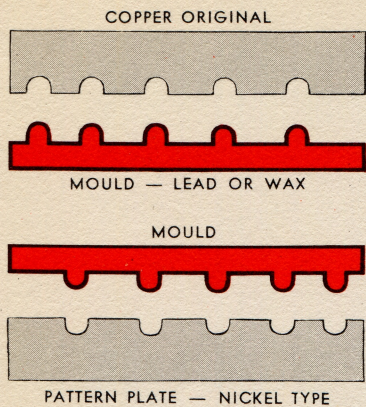
# Progressive Proofs Not Furnished



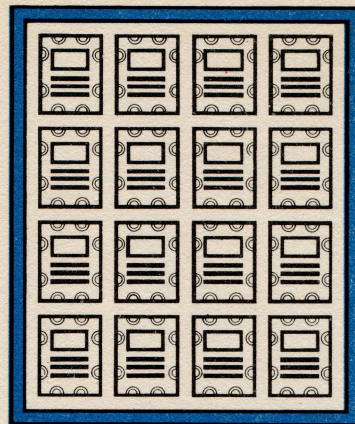
**PROGRESSIVE COLOR PROOFING**



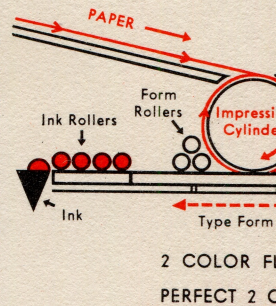
**9 ELECTROTYPING**



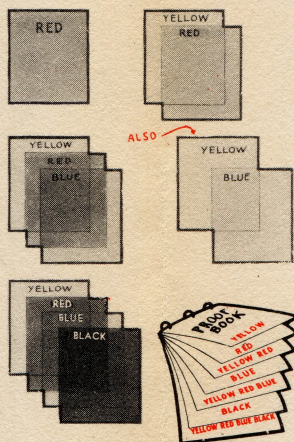
**10 LOCK-UP FORM**



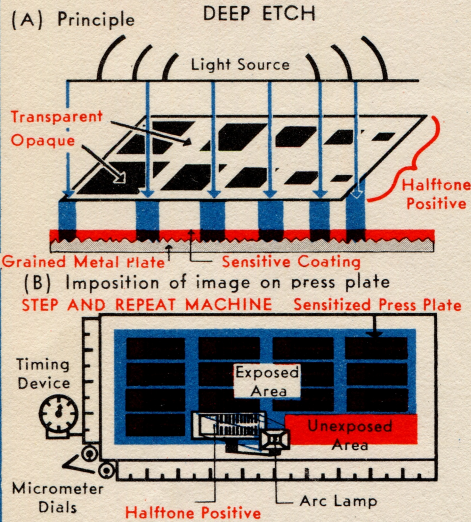
**11 PRINCIPLE OF**



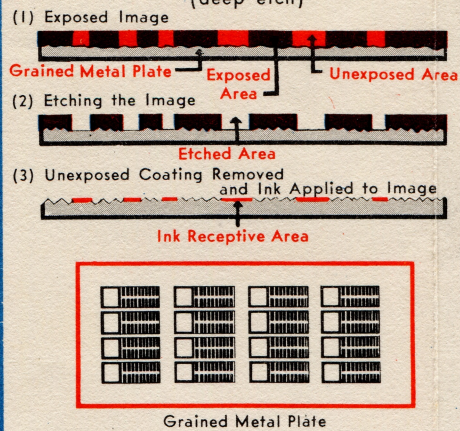
**PROGRESSIVE COLOR PROOFING**



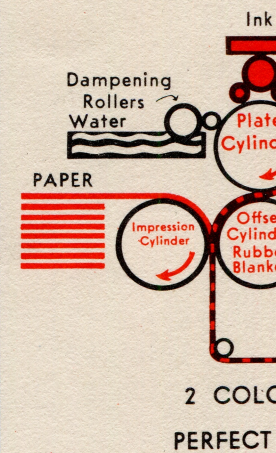
**9 PRESS PLATE MAKING DEEP ETCH**



**10 DEVELOPING OF IMAGE ON PRESS PLATE (deep etch)**

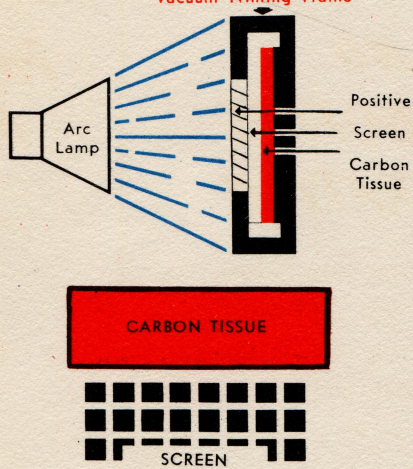


**11 PRINCIPLE OF**

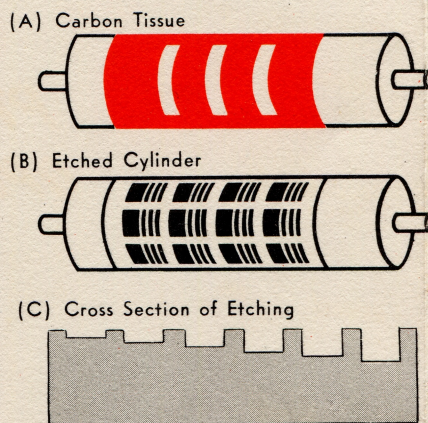


*Progressive Proofs Not Furnished*

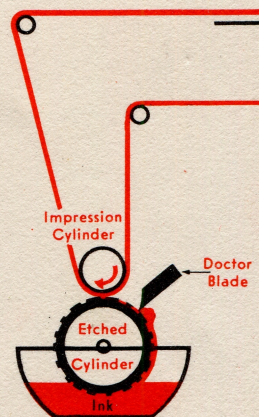
**9 CARBON TISSUE PRINTING**



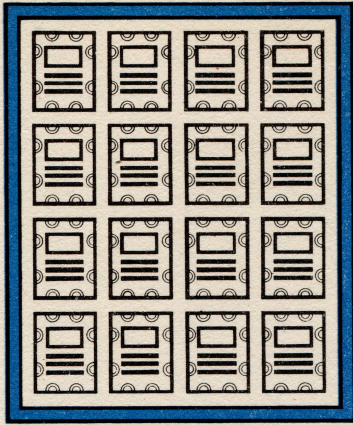
**10 CARBON PRINTS ON CYLINDER**



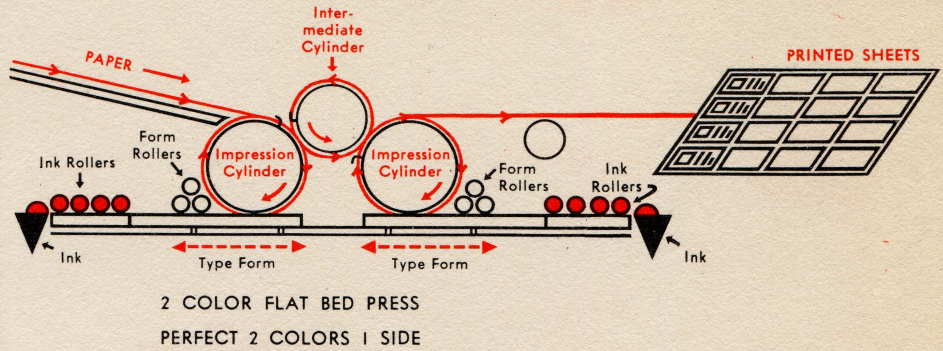
**11 PRINCIPLE OF**



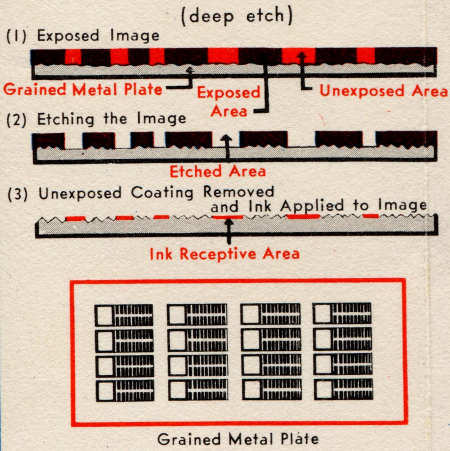
10 LOCK-UP FORM



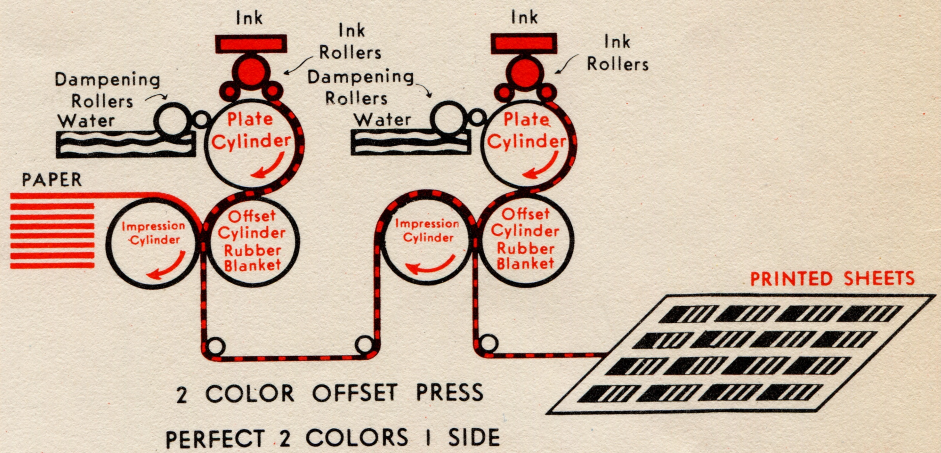
11 PRINCIPLE OF RELIEF PRINTING PRESS



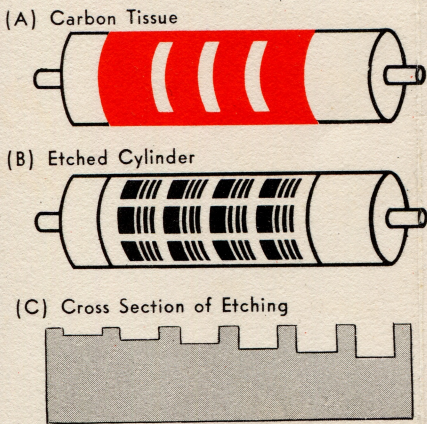
10 DEVELOPING OF IMAGE ON PRESS PLATE (deep etch)



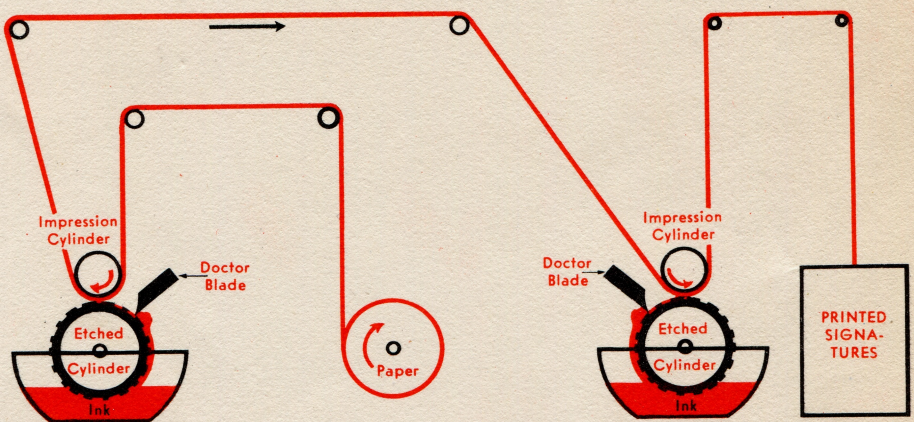
11 PRINCIPLE OF THE OFFSET PRESS



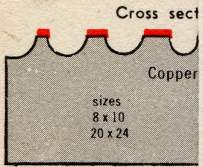
10 CARBON PRINTS ON CYLINDER



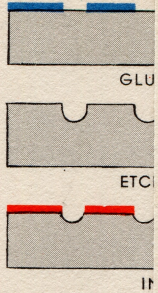
11 PRINCIPLE OF THE GRAVURE PRESS



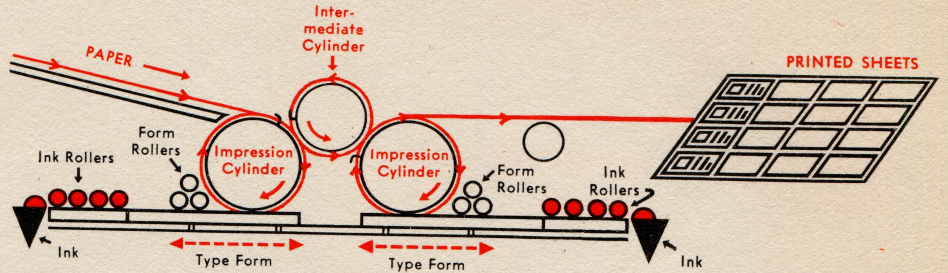
**LETTER**  
(Relief)



6 COLOR

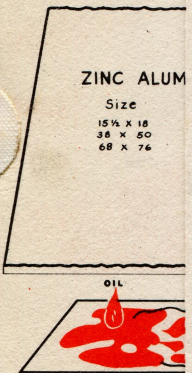


11 PRINCIPLE OF RELIEF PRINTING PRESS

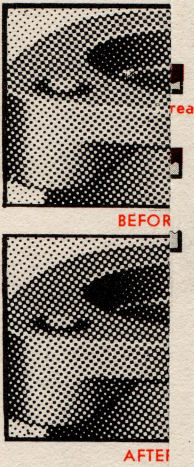


2 COLOR FLAT BED PRESS  
PERFECT 2 COLORS 1 SIDE

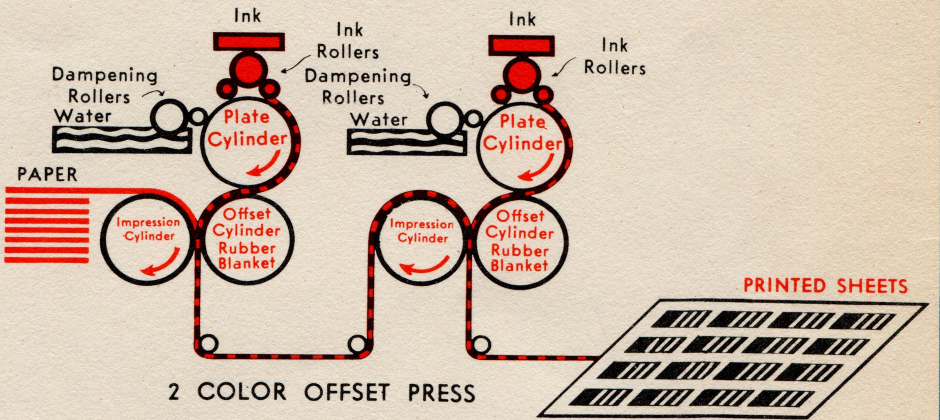
**OFFSET LITHO**  
(Plano)  
Grained



6 COLOR



11 PRINCIPLE OF THE OFFSET PRESS

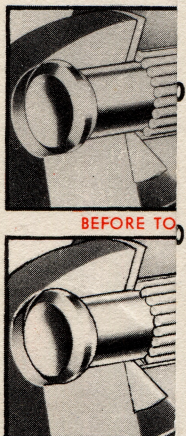


2 COLOR OFFSET PRESS  
PERFECT 2 COLORS 1 SIDE

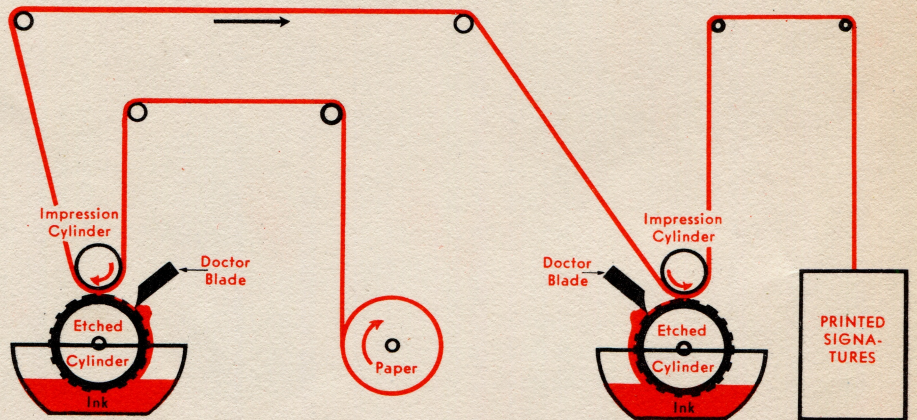
**GRAVURE**  
(intaglio)



6 COLOR CONTIN



11 PRINCIPLE OF THE GRAVURE PRESS



**LETTER PRESS**  
(Plan Printing)

Uses:  
 PRINTING OF HEADLINES  
 ART COPY

**ART COPY**

OIL PAINTING  
 WATER COLOR DRAWINGS  
 PASTEL DRAWINGS  
 KODACHROME  
 EKTACHROME  
 CARBID COLOR PRINTS  
 BLACK & WHITE WASH DRAWINGS  
 BLACK & WHITE PHOTOGRAPHS  
 BLACK & WHITE LINE DRAWINGS

**USES**  
 WALL PAPER  
 NEWSPAPERS  
 BOOKS  
 MAGAZINES  
 CATALOGS  
 LABELS  
 GENERAL COMMERCIAL

**2 HALFTONE CUT-OUT NEGATIVES**

NOTE...  
 SCREEN IS USED AT THIS OPERATION

**3 HALFTONE CUT-OUT NEGATIVES**

Uses:  
 Brown Print for Type Paste-Up  
 Customer's Paste-Up of Type

**4 METAL PRINTING OPERATION**

(A) Exposure Printing Plate  
 (B) Principle

Uses:  
 Line Plate for Type  
 Blue Proof

**5 HALFTONE ORIGINAL PLATES**

Uses:  
 Line Plate for Type  
 Blue Proof

**6 COLOR ETCHING**

Uses:  
 Line Plate for Type  
 Blue Proof

**7 PROOFING OPERATION**

Principle of the Proofing Press

Uses:  
 Line Plate for Type  
 Blue Proof

**8 PROGRESSIVE COLOR PROOFING**

Uses:  
 Line Plate for Type  
 Blue Proof

**9 ELECTROTYPING**

COPPER ORIGINAL

Uses:  
 Line Plate for Type  
 Blue Proof

**10 LOCK-UP FORM**

Uses:  
 Line Plate for Type  
 Blue Proof

**11 PRINCIPLE OF RELIEF PRINTING PRESS**

2 COLOR FLAT BED PRESS  
 PERFECT 2 COLORS 1 SIDE

**OFFSET LITHOGRAPHY**  
(Reverse Printing)

Uses:  
 MAPS  
 POSTERS  
 DISPLAYS  
 BLOW UPS  
 METAL DECORATING  
 BOOKS  
 MAGAZINES  
 CATALOGS  
 LABELS  
 GENERAL COMMERCIAL

**ART COPY**

OIL PAINTING  
 WATER COLOR DRAWINGS  
 PASTEL DRAWINGS  
 KODACHROME  
 EKTACHROME  
 CARBID COLOR PRINTS  
 BLACK & WHITE WASH DRAWINGS  
 BLACK & WHITE PHOTOGRAPHS  
 BLACK & WHITE LINE DRAWINGS

**USES**  
 MAPS  
 POSTERS  
 DISPLAYS  
 BLOW UPS  
 METAL DECORATING  
 BOOKS  
 MAGAZINES  
 CATALOGS  
 LABELS  
 GENERAL COMMERCIAL

**2 CONTINUOUS-TONE CUT-OUT NEGATIVES**

NOTE...  
 SCREEN IS NOT USED AT THIS OPERATION

**3 CONTINUOUS-TONE CUT-OUT NEGATIVES**

Uses:  
 Brown Print for Type Paste-Up  
 Customer's Paste-Up of Type

**4 HALFTONE POSITIVE OPERATION**

Uses:  
 Line Plate for Type  
 Blue Proof

**5 HALFTONE SCREENED POSITIVES for DEEP ETCH PROCESS**

Uses:  
 Line Plate for Type  
 Blue Proof

**6 COLOR CORRECTION**

Halftone Etching

Uses:  
 Line Plate for Type  
 Blue Proof

**7 PROOFING OPERATION**

Principle of the Proofing Press

Uses:  
 Line Plate for Type  
 Blue Proof

**8 PROGRESSIVE COLOR PROOFING**

Uses:  
 Line Plate for Type  
 Blue Proof

**9 PRESS PLATE MAKING DEEP ETCH**

(A) Principle  
 (B) Impression of image on press plate

Uses:  
 Line Plate for Type  
 Blue Proof

**10 DEVELOPING OF IMAGE ON PRESS PLATE**

Uses:  
 Line Plate for Type  
 Blue Proof

**11 PRINCIPLE OF THE OFFSET PRESS**

2 COLOR OFFSET PRESS  
 PERFECT 2 COLORS 1 SIDE

**GRAVURE**  
(Intaglio printing)

Uses:  
 PICTORIAL SUPPLEMENTS  
 BOOKS  
 MAGAZINES  
 CATALOG SECTIONS  
 COTTON & SILK GOODS  
 METAL FOIL  
 CELLOPHANE

**ART COPY**

OIL PAINTING  
 WATER COLOR DRAWINGS  
 PASTEL DRAWINGS  
 KODACHROME  
 EKTACHROME  
 CARBID COLOR PRINTS  
 BLACK & WHITE WASH DRAWINGS  
 BLACK & WHITE PHOTOGRAPHS  
 BLACK & WHITE LINE DRAWINGS

**USES**  
 PICTORIAL SUPPLEMENTS  
 BOOKS  
 MAGAZINES  
 CATALOG SECTIONS  
 COTTON & SILK GOODS  
 METAL FOIL  
 CELLOPHANE

**2 CONTINUOUS-TONE CUT-OUT NEGATIVES**

NOTE...  
 SCREEN IS NOT USED AT THIS OPERATION

**3 CONTINUOUS-TONE CUT-OUT NEGATIVES**

Uses:  
 Brown Print for Type Paste-Up  
 Customer's Paste-Up of Type

**4 CONTINUOUS-TONE POSITIVE OPERATION**

NOTE...  
 SCREEN IS NOT USED AT THIS OPERATION

**5 CONTINUOUS TONE POSITIVES for GRAVURE**

Uses:  
 Negative of Type  
 Mounted Positive with Type

**6 COLOR CORRECTION CONTINUOUS TONE**

USES:  
 Negative of Type  
 Mounted Positive with Type

**NO PROOFING OPERATION**

Progressive Proofs Not Furnished

Proofs are submitted from press cylinders before running edition.

**7 PROOFING OPERATION**

Principle of the Proofing Press

Uses:  
 Line Plate for Type  
 Blue Proof

**9 CARBON TISSUE PRINTING**

Uses:  
 Line Plate for Type  
 Blue Proof

**10 CARBON PRINTS ON CYLINDER**

Uses:  
 Line Plate for Type  
 Blue Proof

**11 PRINCIPLE OF THE GRAVURE PRESS**

2 COLOR OFFSET PRESS  
 PERFECT 2 COLORS 1 SIDE