



Class Session
11

Date
11/7

Topic
LITHO PRESS CONFIGURATIONS

Text/Chapter

DeJidas, chapters 1

Preparation

Overheads of litho press configurations
Heidelberg Amstetten Film
VCR/TV

Announcements

Take Attendance

Test

None

Lecture/Demonstration

- I. Sheetfed Presses
 - A. Duplicators (usually less than 14 x 18")
 1. Cylinder designs: remind them of 2, 3 and 4-cylinder designs
 2. Major brand names
 - a. Multilith
 - b. Chief-Gestetner-Ditto
 - c. Davidson
 - d. Ryobi
 - e. ABDick

Lecture/Demonstration continued

- f. Heidelberg (T-Offset)
3. 2-color common-blanket-cylinder duplicator (T-head from Townsend Industries)
 - a. add on or presses come that way
 - b. problems with dampening
 - c. little register problem between colors
4. 2-unit 2-color duplicator (Toko)
5. Total copy center (see page 14)
 - a. Auto insertion and ejection of photo-direct plate
 - b. Auto cleaning of blankets
 - c. Auto collating
 - d. Can perfect
6. Jet Press
 - a. Specially designed feeder for envelopes
 - b. Conveyor-type delivery for very fast delivery of envelopes.
- B. Single-color sheetfed press (larger than 14 X 18")
 1. Major brands
 - a. Heidelberg (bought Miller)
 - b. MAN Roland (was Miehle)
 - c. Komori (Lithrone)
 - d. Akiyama
 - e. Oliver (Rockwell International)
 - f. Solna
 2. Cylinder arrangement: shaped like an "L" (see page 4)
 - a. reduce overall height of press
 - b. make it easier to feed the paper into the impression cylinder grippers
 - c. make it possible to "throw-out" the blanket cylinder to prevent all three cylinders from touching
 3. Metal decorating presses have cylinders arranged in a vertical line (so sheet of metal need not bend).
 4. Cylinder movement
 - a. Blanket must be able to "throw-out" and "throw-on" when sheet is present
 - b. Impression cylinder must be adjustable to compensate for varying thicknesses of paper.
- C. Multicolor sheetfed press (larger than 14 X 18")
 1. Single-color units arranged in tandem linked by an odd number of transfer cylinders
 - a. 3 transfer cylinders between units
 - b. single double-sized transfer cylinder
 - c. Most presses are multicolor. 4-color is passe. Now presses often print 6 or 7 colors (process color plus one or two spots and one or two varnishes).
 2. Common impression cylinder press
 - a. A single impression cylinder serves two pairs of plate and blanket cylinders.
 - b. Possible to maintain better registration than a tandem style machine.
 3. Perfecting press
 - a. *Convertible perfector*: can print either two (or more) colors on one side or one (or more) colors on the front and one on the reverse side using special transfer cylinders (see pages 26–27). Example is the MAN Roland 300P we have in the Printing Plant.
 - b. *Blanket-to-blanket press*: Always a perfecting press—not convertible. Each blanket acts as an impression cylinder for the other blanket—so no impression cylinders are needed (see pg 11).

Lecture/Demonstration continued

D. Proofing Presses—sheetfed

1. Sometimes a service bureau has a regular single or more-color printing press for printing proofs for very particular customers.
2. Dedicated proof press
 - a. flat bed design
 - b. plate and paper remain on flat surface
 - c. blanket rolls over both plate and paper—picks up ink from plate and prints it to paper.
3. Proof presses are being used less and less
 - a. Photo-mechanical proofs are taking their place.
 - b. Proof presses have the advantage of using real ink, real plates made from the real negatives, and the exact same paper that will be used to print the job. Also, no overlays are necessary.
 - c. Downside to proof press is very high cost of proof.

II. Web-fed Presses

A. Business-forms presses

1. Infeed
 - a. Tension control (throw length)
 - b. Web guide (Fife Guide)
 - c. Brake
2. Printing Units
 - a. Three-cylinder printing units
 - b. Can be arranged in tandem
 - c. Web can be turned over using a “turn-bar”
 - d. Must have sensors for web break to prevent “wrap-ups.”
 - e. Move side-to-side registration by moving plate cylinder from side to side.
 - f. Move head-to-tail (around the cylinder) registration by adjusting the distance of the paper’s path between units.
3. Auxiliary operations
 - a. Consecutive numbering
 - b. in-line perfing (rotary)
 - c. cross perfing
 - d. imprinting
 - e. hole punching (for collating and filing)
 - f. in-line slitting (rotary)
 - g. rotary cut-off
4. Delivery
 - a. cut-sheets (using a conveyor-type delivery)
 - b. re-wound
 - c. fan-fold

B. Commercial Web Presses

1. Infeed
 - a. flying paster (splicer)
 - b. festoon (to have enough additional paper available so that splice can be accomplished without stopping the press)
2. Printing Units
 - a. generally blanket-to-blanket perfecting

Lecture/Demonstration continued

b. Usually printing units are operated by remote console

3. Drying

1. Dryer (EPA problems)
2. Chill rolls

4. Delivery

1. Folded signatures
2. Sheets
3. Rolls for subsequent processing (converting) into products such as paper plates, envelopes, etc.

C. Newspaper presses

1. Infeed

- a. Numerous infeeds
- b. Numerous paths through the press—flexibility to create newspaper sections with varying pages, and placement of spot or process color.
- c. Infeed is often located on a floor beneath the press (reel-room)

2. Printing Units

- a. May be perfecting or CIC (common -impression cylinder) in design.
- b. Paper may pass through the same printing unit more than once.
- c. Press is usually multiple stories in height

3. Delivery

- a. Completed sections of the newspaper
- b. Conveyors generally transport sections to a different location or floor than the press's location.

III. Hybrid web/sheet presses

A. The roll-converter press

1. Usually a duplicator (Davidson)—also used by new Agfa Chromapress (on-demand press)
2. A roll-stand replaces the feeder
 - a. roll paper is much cheaper than sheeted stock
 - b. roll contains more paper than a feeder can—less stopping to reload
3. The roll is cut into sheets by a rotary knife—can be adjusted for varying lengths of sheet
4. The sheet is fed into the conventional duplicator register board and registered, printed, and delivered conventionally.

IV. Manufacture of Printing Presses

Show Heidelberg Film