

UNIVERSITY OF HOUSTON

Graphic Communications Technology Specialization

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TROUBLESHOOTING PRESS PROBLEMS PAPER PROBLEMS



Student Objectives: The student will be able to:

1. Define and give causes for various pressroom paper problems including contamination, moisture problems, cracking, tail-end hook, set-off, mottle and others.
2. Troubleshoot the causes for paper curl, wrinkles, gripper bite, and paper missing the grippers.
3. Handle curled paper in the feeder.
4. Handle problem stock such as envelopes, NCR paper, small sheets and water-marked sheets.

PEOPLE PROBLEMS

These are problems caused by human error such as carelessness, lack of information or improper instructions.

1. Cutting paper to wrong size.
2. Using wrong grain direction
3. Using wrong basis weight.
4. Dog ears.
5. Wrong color paper.
6. Printing on the wrong size of NCR (Carbonless Paper)
7. Printing on the wrong side of watermarked paper.



Draw CB, CF, CFB papers



Draw a printed watermarked sheet

PRESS CONTAMINATION

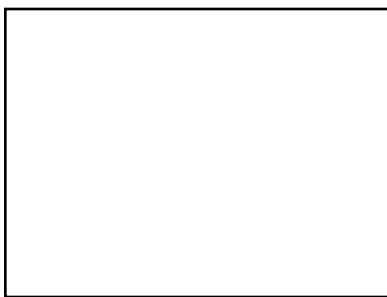
Press contamination occurs when the paper is dirty or contains weakly bonded or other foreign materials that get onto blankets and/or into the ink.

1. *Calender scale*: coating which stuck to the calendering rollers of the paper machine then broke loose. It partially bonds to the paper, but the tack of the ink can remove it. Such paper must be replaced.
2. *Loose Dust*: Similar to calender scale, but the dust is NOT stuck to the paper. Can be cleaned with a sheet cleaning (vacuuming) device attached to the feeding mechanism of the press.
3. *Picking*: The paper was well made, but the ink tack is stronger than the paper. Fibers of paper are actually pulled out of the stock. Reducing speed of the press, using an ink with less tack, reducing blanket to impression pressure, or increasing ink flow (a thick film splits easier than a thin film) help to overcome picking.
4. *Dusting*: is the appearance of paper fibers or coating on the blanket. The dust works its way into the print causing dots to enlarge or lines to blur. Many times, dust forms on the non-image areas, so changing the ink has little effect. Increasing water flow, reducing press speed, or reducing blanket to impression pressure will reduce dusting.
5. *Piling*: is when the ink becomes too short to transfer and builds up on the blanket. If ink is poorly ground or has too much pigment, there is a tendency for the ink to become short or putty-like. Working water into the ink increases shortness. Short inks do not transfer well and build up on the blanket. The addition of paper dust or coating aggravates the problem. Changing paper, increasing ink flow, slowing the press and decreasing blanket to impression pressure help reduce piling.

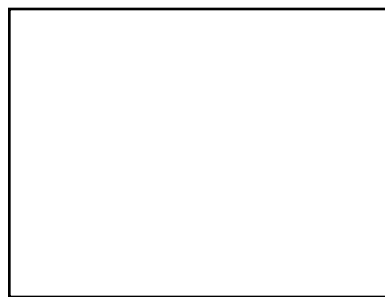
ROLL CONDITION (WEB PRESSES)

Problems due to mis-handling of paper. Paper will be wasted.

1. Telescoped rolls.
2. Crushed rolls
3. Gouges



Draw a telescoped roll



Draw a crushed roll

SHIPPING & HANDLING DAMAGE

1. Paper should be inspected before it is unloaded from the truck.
2. Photographs should be taken of damaged stock for documentation purposes.
3. Damaged paper should be immediately reported to the paper merchant and the trucking company.

MOISTURE PROBLEMS

Problems due to rapid changes in the rH of the pressroom or storage area.

1. *Tight-edged*: Caused by rH changing from high to low.
2. *Wavy-edged*: Caused by rH changing from low to high
3. Such papers MAY NOT be printable.
4. Humidity control and air conditioning help to eliminate the problem.
5. Proper paper conditioning (acclimation), including keeping paper skids/packages tightly wrapped until the paper becomes the same temperature as the pressroom, helps eliminate moisture problems. Remember the analogy of the cold drink in a glass on a hot day: moisture from warm air condenses on the OUTSIDE of cold objects. Thus, if a cold skid of paper is brought into a warm pressroom, moisture from the pressroom's air will condense on the edges of the pile, thus causing the edges to become wavy and ruining the paper. If the paper is tightly wrapped and air-sealed, moisture will not be able to get into the package. Thus, paper should be left sealed until it is the same temperature as the pressroom.

STATIC

Static electricity, caused by motion through dry air, can cause paper to stick to the feedboard, to the other metallic parts of the press and to other sheets piled in the press delivery.

1. Paper with rH of 35% or more usually gives no static problems.
2. Addition of moisture by the lithographic process helps to eliminate static.
3. Static may develop on dry days on the feedboard or in the delivery.
4. Anti-static sprays, grounding tinsel and delivery static neutralizing bars eliminate the problem.

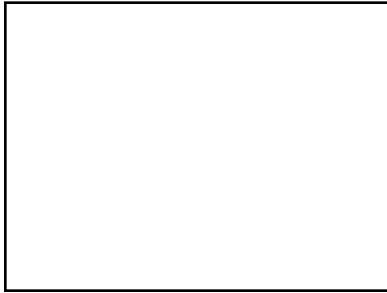
CRACKING

When paper cracks at the fold. It produces an ugly cover. Cracked pages will fall apart and drop out of a book or other publication.

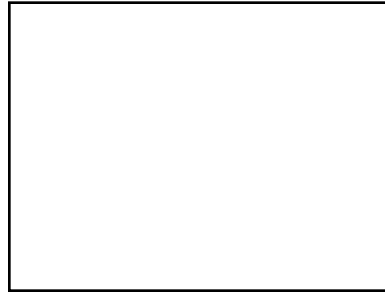
1. Can be caused by paper which is too dry.
2. Can be caused by folding paper against the grain.
3. Can be caused by folding thick papers without prior scoring.

TAIL-END HOOK, WAFFLING

When the sheet is molded by stretching due to the pull of a solid image and the impression squeeze. It is caused by ink tack pulling on the sheet in conjunction with the printing squeeze pressure.



Draw tail-end hook



Draw waffling

MOTTLE

Uneven acceptance of ink by the paper.

1. Occurs generally on uncoated papers.
2. Fibers in lower-quality papers are not evenly distributed in the paper: they are clumped and not smooth. The evenness of fiber distribution is called the **FORMATION** of the paper.
3. The clumps absorb more ink than the non-clumped areas. Where the ink is more absorbed, the print will look **LIGHTER** than where there are no clumps. Poorly formed paper thus looks blotchy or mottled.
4. Coating paper seals the fibers in so mottling doesn't occur.

FEEDING CURLED PAPER

If the paper is not flat, it may sometimes be fed by flattening the top of the pile in the feeder. This is done by driving wedges into the pile until the top of the stack is flat. Wedges must not be allowed to feed into the press.



Draw a wedge



Draw a wedge in a stack of paper.

FEEDING SMALL CARDS AND ENVELOPES

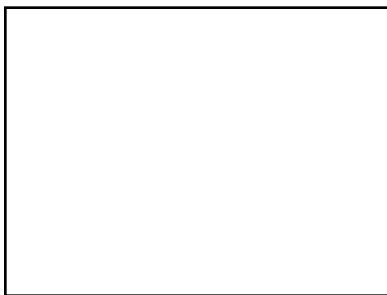
Problems may occur with the flatness of the paper pile, tripping of the impression and jogging in the delivery.

1. Most duplicators require no special precautions for feeding small papers.
2. Multilith duplicators require that the job be stripped so that the sheet will be fed off-center toward the gear side so that the impression on-off mechanism is "tripped" by the paper. If the paper is stripped and fed centered, the impression will not be turned on as the paper passes into the printing unit.
3. Envelopes are best fed with special envelope feeders which feed from the bottom of the pile. In standard feeders, envelopes must be stacked in small stacks or wedges must be used so that the unevenness of the pile, caused by the envelope flaps, can be compensated for. Feeders cannot feed paper that is not flat at the top of the pile.

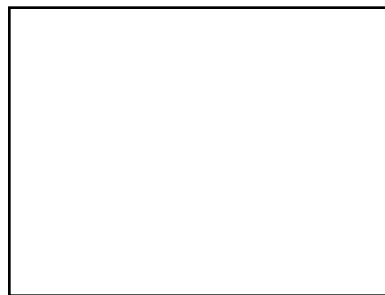
PRINTING ON NCR (CARBONLESS) PAPER

Carbonless paper is very expensive and can be easily ruined by careless handling.

1. Use minimum pressure to avoid bursting the chemical capsules.
2. Paper must be carefully loaded in the feeder so that the entire pile has the coated side(s) either up or down (depending on the job).
3. The proper *sequence* of pre-collated carbonless papers must be used. Davidson presses, because they print on the bottom, and many copying machines require *forward sequence pre-collated papers*. Most other presses, including Chiefs, Multis and Hamadas, require *reverse sequence pre-collated papers*. Printing on the second side of the sheet may alter the sequence needed.



Draw a 3 part forward sequence set as it would appear in the feeder.



Draw a 3 part reverse sequence set as it would appear in the feeder

SET-OFF

Set-off, sometimes called offset, occurs when the still-wet ink on one sheet of paper sticks to the back of the next sheet which is dropped into the delivery.

1. Most pronounced on coated papers.
2. Caused by the ink non absorbing into the paper and drying fast enough.
3. Can be corrected by using less ink, using anti-set-off powder or using faster drying inks.

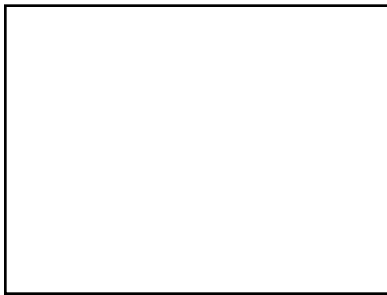
PAPER MISSES GRIPPERS

Paper is not held by the grippers during printing.

1. Paper flies out of the back end of the delivery or ends up on the blanket or ink rollers.
2. Due to improperly set grippers (too loose) or improper timing of infeed device or feeder.

GRIPPER BITE

Delivered sheets have tears corresponding to the location of press grippers. Can be caused by incorrectly set grippers (too tight), improper adjustment of front stops, or poor timing of the infeed device.



Draw a sheet with gripper bite.