



Backing Away

PROBLEM-The ink remains in the fountain and backs away from the fountain roller, failing to flow and replace the ink removed by the ductor roller.

SYMPTOM-The printed area's appearance is uneven or becomes progressively lighter in color as the run continues.

probable cause		remedy
1	Press not equipped with fountain agitator.	Make the ink more fluid by adding overprint varnish (up to 1 oz. per pound). Contact Superior and have the laboratory make formula changes for the future.
2	The ink is too short and buttery.	With some inks, the addition Precision/Pantone transparent white or overprint varnish will increase its length and flow properties.
3	Not enough ink in fountain.	Add more ink.

Blinding of Plates

PROBLEM-Image area of the plate is progressively losing its ink receptivity.

SYMPTOM-Loss of image or density of color.

probable cause		remedy
1	Plate has not been properly prepared.	Monitor plate-making process more carefully; make new plate.
2	The fountain solution is improperly prepared or incorrectly formulated.	Check pH/conductivity of fountain solution and adjust to manufacturer's specifications.
3	Excessive amounts of lint being deposited on the plate.	See "Picking/Linting."
4	Excessive plate-to-blanket pressure causing plate wear. Also excessive or improper roller pressure.	Check pressure with packing gauge and reset to specifications.
5	Plate cleaners and/or scratch removers were not fully rinsed off and have dried on the plate.	Prevention is the only remedy. Do not let cleaners or scratch removers dry on the plate; rinse thoroughly immediately after use.
6	Calcium "kick out" from substrate.	Contact paper manufacturer.
7	Improperly ground ink.	Keep a sample of the ink that has not been in the fountain and call a Superior technical representative to determine if the ink needs to be reground.

Chalking

PROBLEM-The ink fails to properly bind to the stock.

SYMPTOM-After the ink is dried, the ink can easily be rubbed off the sheet as a powder.

NOTE: Chalking is not apparent until after the job has been printed and dried. A chalked job can sometimes be salvaged by overprinted with a gloss varnish.

probable cause		remedy
1	Excessive vehicle penetration into the substrate.	Contact paper manufacturer if job has been completed. If job is not complete, try adding Superior's product number OV-196 (Super Water Repellent Varnish).
2	Excessively acidic stock caused slow drying.	Check stock pH; if too acidic, add W-4280 Combination Drier (up to 1/4 oz. per pound of ink) or W-1401 Liquid Fountain Additive or consult ink technician to reformulate ink.
3	Fountain solution too acidic.	Make more alkaline (e.g. raise pH from 4.0 to 4.5).
*4	Ink formulated too soft, causing emulsification.	Add 1/2 oz. of OV-196 and consult ink technician if formulation of ink with better water fighting properties is required.
*Although not the most probable cause, this should be investigated and ruled out first.		

Crystallization (Reticulation)

PROBLEM-The first down ink dries and hardens to the point that the next ink cannot adhere to the dried ink surface.

SYMPTOM-The subsequent inks can:

- a. Crawl immediately as sheets are being delivered.
- b. Crawl in the pile during the drying process.
- c. Scratch and chip when dried.

probable cause		remedy
1	Too much time elapsed between first and next down ink being printed.	Reduce time between running successive colors.
2	Adhesion of second down ink prevented by excessive use of spray powder over the first down ink.	Run sheets through press with impression on, or remove excess spray powder by hand wiping the sheets.
*3	Excessive drier in first down ink.	Consult ink technician to reformulate ink.
*4	First down ink dries too hard.	Consult ink technician to reformulate ink.
*Although not the most probable cause, this should be investigated and ruled out first.		

Dot Gain

PROBLEM-Halftone dots increase in size compared to image on the plate.

SYMPTOM-Sharpness and/or tone reproduction of printing is visibly reduced and/or altered.

probable cause		remedy
1	Excessive or uneven pressure from roller-to-plate, plate-to-blanket, or blanket-to-paper.	Check settings and adjust pressure to manufacturer's specifications.
2	Slurred or doubled dots.	Check unit-to-unit register.
3	a. Improperly formulated fountain solution.	a. Consult manufacturer.
	b. Improperly prepared fountain solution.	b. See manufacturer's specifications.
4	Poor quality paper.	Try a different paper. Use better quality paper with a more uniform surface if necessary.
5	Plate improperly developed.	Remake plate.
6	The ink has emulsified.	See "Unstable Ink/Water Balance."
7	Ink piling on plate.	See "Piling."
8	Running too much ink.	Check density. If density is correct, consult ink technician to strengthen ink, if possible.
9	Poor quality blankets.	Consult blanket manufacturer for appropriate blanket.

Drying

PROBLEM-The ink dries too slowly.

SYMPTOM-The printed ink film is wet or tacky for an unreasonable period of time after the job is printed.

probable cause		remedy
1	The ink has emulsified.	See "Unstable Ink/Water Balance."
2	The fountain solution's pH is too acidic or the conductivity is too high.	Adjust pH/conductivity to manufacturer's specifications.
3	Uneven plate dampening.	Check dampening settings.
4	Stock too acidic, too alkaline, or too high in moisture content.	Contact paper manufacturer or Superior technical service to determine if this is a cause and suggest a remedy.
5	Stock not acclimated to pressroom.	Allow sufficient time for paper to adjust to pressroom conditions. Depending on differential, this could be as much as 12 to 24 hours.
6	Excessive ink film thickness.	Run thinner film, consult ink technician to reformulate stronger ink if possible; adjust ink/water balance.
*7	Improper ink ordered for the stock.	Consult ink technician to reformulate ink with correct drying properties for the stock.
8	Improper humidity and temperature control in pressroom.	Keep proper temperature and humidity controls in the pressroom. Wind sheets before continuing with finishing operations and stack in small lifts.
*Although not the most probable cause, this should be investigated and ruled out first.		

Flying and Misting

PROBLEM-Filaments of ink are thrown from the rollers into the air.

SYMPTOM-A spray or mist of ink is visible in the air around the press, which eventually settles, covering the area in a thin film of ink.

probable cause		remedy
1	Too heavy an ink film being run on the ink roller train.	Run less ink; consult ink technician to formulate stronger ink, if possible.
2	Press speed is excessive for the form being run.	Reduce running speed.
3	Rollers are worn or incorrectly set.	Reset, recondition with Kwik & EZ, or replace rollers.
4	The ink has emulsified.	See "Unstable Ink/Water Balance."
*5	Body of ink is too long for form being printed.	Add OV-196 Super Water Repellent Varnish (up to 5 oz. per pound) to shorten the ink's body.
*Although not the most probable cause, this should be investigated and ruled out first.		

Ghosting (Chemical)

PROBLEM-There are two types of chemical ghosting, i.e., gloss ghosting and gas ghosting (or fuming):

- a. Gas ghosting (fuming) occurs when the printed ink film affects the ink film on the backside of the sheet above it in the delivery pile.
- b. Gloss ghosting occurs when the printed ink film excessively penetrates to the back side of the same sheet.

SYMPTOM-A printed image from the front of a sheet appears on the printed back side of that sheet. In some cases, the image may not be visible until overprinted with varnish.

probable cause	remedy
1 Solvent fumes released. Ghost image appears dull (gas ghosting)	Wind sheets and allow more time to dry prior to printing opposite side. Run through press with impression on, with heat assist. Run (Superior product) gloss varnish or gloss/matte varnish combination to mask condition. To avoid this problem in future press runs, keep a sample of job and discuss with Superior technical representative.
2 Excessive penetration of ink into substrate. Ghost image appears glossy (gloss ghosting).	a. Wind sheets and allow more time to dry prior to printing opposite side. Run gloss varnish or gloss/matte varnish combination to mask condition. Print heavy form first (to avoid in future). b. Use less absorbent, or heavier weight paper.

Ghosting (Mechanical)

PROBLEM-A ghost image transferred over a printed image on the same side of the sheet.

SYMPTOM-An image from another part of the form appears in large solids or dense halftones.

probable cause		remedy
1	Layout of the job.	If possible, improve layout. Add take-off bars or increase oscillation.
2	Ink starvation.	Add Precision/Pantone transparent white to increase ink film thickness by reducing ink strength. Make ink semi-opaque. (Call a Superior technical representative to determine if this is possible).
3	Improper ink/water balance.	Adjust fountain solution settings.

Hickies

PROBLEM-Particulate matter is introduced into the ink as a result of:

- a. carelessness in the manufacture or handling of the paper.

- b. carelessness in the handling of the ink.
- c. a dirty or poorly maintained press.

SYMPTOM-The appearance of fiber lengths or imprinted circles in the printed areas of the sheet.

probable cause		remedy
1	Loose paper coatings or paper dust.	Check incoming paper and sharpness of blade on paper cutter. Contact paper manufacturer.
2	Ink is pulling the coating from the paper.	Reduce tack of ink with 8124 Super Gel Compound. If this is not successful, contact paper manufacturer.
3	Roller particles.	Clean or recondition rollers with Kwik & EZ, making sure to clean outer edges. Replace as necessary.
4	Dried ink particles in previously opened ink cans.	Improve housekeeping and reduce skinning of opened cans by spraying with Superior Anti-Skin Ink Spray and replacing cover on can.
5	Foreign particles.	Keep pressroom clean and dust free.

Picking/Linting

PROBLEM-The surface of the paper becomes rough or is ruptured; hickies appear in printed areas.

SYMPTOM-“Picking” is the lifting of the coating from coated stocks onto the blankets, plates and rollers. “Linting” refers to the pulling of fibers from uncoated stocks.

probable cause		remedy
1	Too much water is reaching the paper.	Reduce dampener setting.
2	Particulate matter on surface of paper or dust from the slitter or trimmer.	Make tape pulls from the blanket. Show paper manufacturer.
3	Tack of ink is too high for the stock.	Lower the tack of ink with 8124 Super Gel Compound or 7/11 Lucky Compound, or increase the thickness of the ink film.
4	Insufficient ink on the rollers.	Reduce ink strength with the addition of Precision/Pantone transparent white to increase film thickness. Increase dampener setting.
5	Blanket pressure is excessive.	Reduce blanket packing and/or back cylinder pressure.
6	Extended make-ready time.	Wash press before start-up or spray rollers.

Piling

PROBLEM-Ink builds up on the rollers, plate and/or blanket.

SYMPTOM-Halftones fill in; solids appear mottled or uneven and sharpness decreases.

probable cause		remedy
1	Paper coating adhering to blanket.	<ul style="list-style-type: none">• Reduce amount of water• Reduce tack of ink with 7/11 Lucky Compound• Run at slower speed.
2	The ink has emulsified, causing it to lose resiliency.	Reduce dampener setting to run less water. If this fails to remedy the problem, consult an ink technician.
*3	Ink insufficiently ground.	Call Superior to determine if ink needs to be reground.
*Although this is not the most probable cause, it should be investigated and ruled out first.		

Rubbing and Scuffing

PROBLEM-A printed ink film which appears dry can be easily rubbed off.

SYMPTOM-Poor rub and/or scratch resistance is exhibited when the printed ink film is abraded.

probable cause		remedy
1	Excessive fountain solution is being run.	Make sure ink/water balance is correct.
2	Fountain solution pH/conductivity is improperly balanced.	Adjust pH/conductivity to manufacturer's specifications.
3	Rough paper surface creates poor rub between unprinted and printed paper surfaces (especially with dull coated stocks).	Consult ink technician to formulate ink with more rub resistance. If job already complete, varnish the sheets with CV-911.
4	Absorbent/poorly callendered substrate allows excessive penetration of vehicle into the substrate.	Consult ink technician to formulate ink with more rub resistance. If job already complete, varnish the sheets with CV-911.
5	The ink has not completely dried.	See "Drying."
6	Too much ink is being run.	Make ink stronger, if possible. Run less ink.
7	Stock is too acidic, too alkaline, or too high in moisture content.	Consult paper manufacturer or a Superior technical representative if you need help in determining this condition.

Scumming

PROBLEM-Non-image areas of the plate accept ink.

SYMPTOM-Non-image areas of the sheet pick up ink.

probable cause		remedy
1	Fountain solution pH/conductivity is incorrect.	Check pH/conductivity of fountain solution and adjust to manufacturer's specifications. If condition still exists, add 1/4 oz. per gallon of 14° Baume's Gum Arabic.
2	Glazed and/or excessive pressure of dampening rollers and ink rollers.	Clean, recondition with Kwik & EZ; adjust or replace as necessary.
3	Excessive plate-to-blanket pressure.	Adjust to proper pressure.
4	Low alcohol or alcohol replacement content of dampening solution.	Raise alcohol or alcohol substitute content.
5	Plate was improperly developed or stored.	Desensitize or remake plate.
6	Ink too soft for form being printed.	Increase body of ink. Add up to 1 oz. per pound of OV-196 Super Water Repellent Varnish.

Set-Off/Blocking

PROBLEM-Ink is transferred from the printed side of the sheet to the backside of the sheet above it in the delivery pile.

SYMPTOM-Set-off is exhibited when ink appears on the sheet's backside. Blocking occurs when the ink dries while adhering to both sides in the pile, causing them to stick together.

	probable cause	remedy
1	Too heavy an ink film.	Run less ink or consult a Superior ink technician to make ink stronger, if possible.
2	Not enough spray powder has been used.	Increase amount of spray powder or use larger particle size spray powder.
3	Spray powder micron size is too small for the ink coverage on the sheet.	Use 38 micron spray powder when coverage is heavy. CAUTION: May interfere with post-press coating applications.
4	The lifts are too large.	Run smaller lifts. Rack if possible.
5	The loads are handled too roughly or too soon after printing.	Be careful when handling the lifts.
6	Sheets delivered improperly.	Sheets should land like a helicopter, not glide onto one another. Adjust delivery accordingly.

Tinting/Toning

PROBLEM-Ink emulsifying into the water fountain is carried to non-image area of the plate by the water dampners.

SYMPTOM-The non-image areas of the printed sheet becomes tinted by the emulsified ink.

probable cause		remedy
1	Improper ink/water balance.	See “Unstable Ink/Water Balance.”
2	Improper fountain solution concentration.	Adjust pH/conductivity to manufacturer’s specifications.
3	Plate processed improperly.	Remake plate.
4	Excessive pressure between plate and blanket.	Check and adjust to manufacturer’s specifications.
5	The coating from the stock is contaminating the ink train.	Lower fountain solution setting and blanket pressure setting. If condition still exists, contact paper manufacturer.
6	The ink is too soft.	a. Add 1/2 to 1 oz. OV-196 Super Water Repellent Varnish.
		b. If press is equipped with a fountain solution cooling, lower temperature.

Trapping

PROBLEM-The inability of an ink to transfer properly to a previously printed ink film during in-line multicolor printing.

SYMPTOM-Low trap percentage values when measured by a reflection densitometer.

probable cause		remedy
1	Inks being run out of proper sequence for the form being printed.	When possible, run lightest form first and heaviest form last.
2	Inks being run out of proper tack sequence.	Generally, each succeeding color should have a lower tack.
3	Ink viscosities improperly balanced.	Generally, each succeeding color should have a lower viscosity.
4	Ink stabilities of the different colors are unequal. (Ink tacks up quicker than preceding ink.)	Consult ink technician to coordinate stability of all colors.
<p>Note: Many factors contribute to good trapping. A preceding ink with higher tack, viscosity, and faster setting speed will improve trapping. Higher quality paper will increase trapping numbers. All of these factors must coexist to achieve other properties, such as gloss, drying time, and the ability to change sequence as needed.</p>		

Unstable Ink/Water Balance

PROBLEM-Frequent on-press adjustment necessary to maintain print quality.

SYMPTOM-Solids or halftones may appear “washed out” and weak.

probable cause		remedy
1	Excessive fountain solution.	Reduce dampener settings. Increase isopropyl alcohol or alcohol substitute to reduce the amount of fountain solution needed to keep the plate clean.
2	Improperly formulated or prepared fountain solution.	Adjust pH/conductivity to manufacturer's specifications.
3	Improper dampening roller setting.	Reset rollers. Check to see that the vibrator roller, not the plate, drives the dampener form rollers.
4	Improper ink form roller and durometer settings.	Conduct an ink stripe test to determine form roller pressure and check durometers with proper gauge.
5	Improper ink fountain settings.	Adjust fountain keys and sweep for proper balance.