

# Picking / Contamination



**Sappi Printer Technical Service**

877 SappiHelp (727 7443)

## Problem

Contaminants pick and adhere to the blanket causing sequential print voids necessitating frequent blanket washes.

## Description

Although often specific to paper, picking and loose contamination can sometimes be the inter-relationship involving the entire printing process. The problem may be either loose debris adhering to the blankets or ink tack picking flakes of coating or fiber from the paper surface. To make this determination, look down through the printed load to find the point of origin where the void first appeared. If the point of origin shows a rupture or crater in the sheet surface, the paper was picked by the force of blanket release. If not, the problem is most likely loose contamination.

When picking/contamination problems become pervasive rather than the exception, the following causes and considerations may offer opportunity for corrective measure.

## Causes

- Cold press start-up and/or cold operating conditions.
- Cold paper increasing ink tack and the force of blanket release.
- Cold ink increasing tack and the force of blanket release.
- Loose pressroom debris or spray powder which may be aggravated by static electricity.
- High ink tack exceeding the cohesive pick strength of the paper.
- Excessive impression squeeze.
- High-force blanket release characteristics.
- Fountain solution to the plate is either too dry or lacks lubricant.
- Excessive or overly aggressive fountain solution is breaking down the paper surface.
- Paper is contaminated or has unusually low cohesive pick strength.

## Options and Solutions

### PRESS CONSIDERATIONS

- Safely idle press to pre-warm for cold start-ups. Pressrooms in colder climates would greatly benefit by full-time climate-control to maintain optimum ambient operating temperature.

## Picking / Contamination (continued)



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- Reduce impression cylinder squeeze until image starts to break up and increase squeeze minimally to achieve acceptable print. Impression squeeze should be no greater than necessary to effectively transfer the ink film onto the paper.
- Reduce any excessive water-to-the-plate which may be transferring to the sheet and breaking down paper or coated surface.
- Check the composition of problem contaminants which may be synthetic or rag fibers, rubber from rollers, contaminants from hickey-picker rollers, dried ink particles, spray powder, etc.
- Check roller durometer and nip-point settings. Hardened rollers may not set properly, impeding ink transfer and thorough wash-up.
- Maintain pressroom relative humidity above 35% to help dissipate the potential for static electricity. An on-press static eliminator and/or air-ionizer may prove helpful. (See Sappi tech tip on Static Electricity).

### INK CONSIDERATIONS

- Cold ink may be unusually high in viscosity, body, and tack. Initial ink temperature should be in acclimation with a properly climate-controlled pressroom and the chill roll presets should maintain a consistent, optimum operating temperature. Consult with ink supplier.
- Reduce ink tack to minimize the sheet stress from high-force blanket release. High ink tack may be exceeding the cohesive strength of the paper or paper coating. Other methods for breaking ink tack may include:
  - Increase ink film thickness on the rollers. A heavier ink film will reduce ink tack at the point of transfer and blanket release. Check ink film thickness on rolls when desired ink density is achieved as it may be necessary to reduce stronger colors or heavily pigmented ink formulations.
  - Rinse rollers after extended down time or long make-readies and apply ink tack reducer to the rolls between press pulls prior to stopping. Ink tack will build on the rollers as solvent evaporates creating difficulties on start-ups.
  - Reduce ink set "speed". The combined set speed of ink and paper may be too fast causing excessive unit-to-unit ink tack builds. Surface absorption rates vary with different paper grades.
- Check ink grind for possible contamination.

### BLANKET CONSIDERATIONS

- High-force blanket release causing pick or delamination. Fast setting ink formulations may demand quicker-release blankets.

## Picking / Contamination (continued)



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- Check blanket packing for proper thickness. Excessive over-packing may cause too much impression squeeze resulting in high-force blanket release.
- Insure compatibility of blanket compound and blanket wash. Overly aggressive blanket wash or solvent may cause blanket tack or swelling on start-up.
- Use edge-sealed blankets to minimize swelling from solvent and fountain solution contamination.
- A clean and quick blanket release is important in both image and nonimage areas. Fountain solution concentrates and alcohol substitutes should offer good lubrication to help insure quick-release blanket characteristics.

### **PAPER CONSIDERATIONS**

- Allow paper to properly acclimate to pressroom temperature. Cold paper may be a contributing factor in adversely building ink tack. Recommendations for proper conditioning and control are listed below under Pressroom Environment.
- Loose contamination – Try engaging an open dusting unit previous to the units of print. Gather tape pulls of blanket contaminants causing voids in print for analysis.
- Pick-outs – Point-of-origin sheet should evidence a pick-out surface “crater”. Reduce ink tack and high-force blanket release to minimize sheet stress. Gather tape pulls of blanket contaminants with the point-of-origin sheet(s) evidencing the pick-out crater for analysis.
- Try a different production run of the same paper.

### **PRESSROOM ENVIRONMENT**

- Monitor relative humidity and temperature. The ambient temperature and humidity of the pressroom may be too high or too low, affecting ink tack and paper strength.
- Ideal pressroom climate is 45% (+/-5%) Rh at 72° (+/-5°) F. for North America and 52% (+/-5%) at 21° C. in Europe.
- Allow paper to acclimate to pressroom environment.
  - Paper will acclimate in skid, carton, or ream wraps. Do not open until going to press.
  - Paper acclimation time is relative to environmental extremes and volume of paper.
- Properly conditioned paper runs with a broader operating window on press.