

Dot or Detail Loss

Our press is fairly new, but we cannot always print fine lines in the center. To get around this, we apply more squeegee pressure in the middle, realizing this may be making matters worse in the long term. What can we do to prevent this from happening and possibly damaging the press?

Other similar questions asked are:

Why do we get excessive dot loss in the middle of the print?

Why do we experience loss of detail or color-shift in the center of the print after switching to UV inks?

Answer: This problem is becoming more common than most operators realize because of the difficulty tracing the cause and finding a satisfactory solution. Without additional information on the scenarios in question, but assuming press make-ready has otherwise been carried out adequately (including the use of a properly sharpened squeegee), there are potentially three major causes. In probable order, these are a weak/delaminated print table, an undersized frame and an oversized squeegee. Let's start with the most likely: a weak/delaminated print table. Table weakness can be so severe that you can place your hand on the table and feel its spongy-like state — although it is not usually noticeable to this extent.

The print table is about the single most expensive part of a flatbed press — and perhaps the most fragile, depending on make, model and size. A table's inner construction is usually of a honeycomb material sandwiched and glued between a top and bottom sheet metal skin. Continuous exposure of the table to solvents, with the additional insult of ink running into the vacuum holes during cleaning, is more than poor practice. Over time, it will dissolve the epoxy resin that attaches the honeycomb to the table top and bottom structures. Delaminating through excessive weight can also occur if operators keep climbing on the table during make-ready or when cleaning the underside of the screen. Either way, the ensuing results will be the same — a delaminated or bowed table that will not allow any thin, soft substrates to be printed successfully in the center.

Replacement and professional repair are clearly answers, but seldom contemplated because of high cost. However, one may work around the problem by following these four steps:

- Reduce vacuum power to a minimum.
- Select a softer durometer blade.
- Use the shortest length squeegee with least amount of pressure.
- Plan the print schedule to allow printing smaller images overall on the affected press.

Sometimes, operators are completely unaware their table is weak until a harder durometer blade, such as a blade for UV, is used on the press. To reduce the possibility of table delaminating in the first place, switch off the vacuum entirely before cleaning; better still, apply reverse airflow

(air cushion) if it's equipped with such a feature. Accidentally printing on the table is human, but pouring solvents down the vacuum holes is *not* divine!

From a printing standpoint, an undersized frame relative to the image is similar to using an oversized squeegee length for the image: They both make quality harder to achieve. Either way, the squeegee tends to collapse in the center because of the extreme pressure of its ends against the upward force of the deflected fabric. When any one of the three faults highlighted compromises print integrity in the center, there are several workable options left to get a “must-do” job out the same day:

- Move image away from the center if option allows.
- Burn a new larger screen.
- Use the correct squeegee length — not more than 25 mm (1 inch) overlap at either end.
- Reduce vacuum power to no more than what's sufficient to hold the sheet down.
- Select a softer durometer blade.
- Increase squeegee angle (from the vertical) slightly, particularly if switching to dual/triple durometer blades.
- Increase squeegee pressure slightly.

Exercise extreme care when making adjustments to squeegee angle and pressure, and bear in mind, there are no guarantees the table will survive any additional onslaught to which will now be exposed.

Advice for checking table flatness: Use a good straight edge with a flashlight behind it for best results. Place a one-piece, non-absorbent material, such as clear film, over the entire vacuum area and apply full vacuum (if adjustable). Combing the straight edge slowly from left to right and back to front (or diagonally) will highlight any deformities in the table.

-- The Print Guru, Mike Young, August 2004