



**Tech Talk From**

**Prisco®**

*Tech Talk #15*

## **SHEETFED FOUNTAIN SOLUTION TROUBLESHOOTING**

It's the middle of third shift on Saturday night, and the press is not delivering acceptable print quality. You've replaced the ink, changed blankets and plates, and reset the rollers – nothing seems to make a difference. One important variable is left to be checked – the fountain solution – but you don't know where to start or what to look for!

At Printers' Service, we maintain an extensive network of Technical Service Representatives who form an important part of our "value added" package. In this Tech Talk we will share with you some of their ideas on troubleshooting pressroom printing problems that may be fountain solution-related.

On the following pages you will find a series of troubleshooting guides that are divided into sections: Problem, Possible Cause and Suggested Remedy. The guides concentrate on possible fountain solution-related causes for some of the most common problems seen on sheetfed presses.

We urge you to use these guides as a starting point for fountain solution troubleshooting. Of course, not all potential problems are listed, and the cause and/or remedy may turn out to be something other than shown.

Some of the remedies may seem contradictory. The offset printing process involves a specific balance between the composition of the fountain solution, and the amount applied during printing. Excessive dot gain, for instance, can be due either to low fountain solution dosage (leads to high water metering speeds which force too much water into the ink, thinning it out) or to dosage that is too high (excessive chemistry causes the ink to emulsify and break down).

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## FOUNTAIN SOLUTION/DAMPENING SYSTEM TROUBLESHOOTING GUIDE

| <b>Problem</b>                                 | <b>Possible Cause</b>   | <b>Suggested Remedy</b>   |
|--|---|---|
| <b>Slow Initial Roll-ups</b>                   | <ul style="list-style-type: none"> <li>• Dosage too low</li> <li>• Water speeds too low</li> <li>• Water metering nip too tight</li> <li>• Excess Ink</li> <br/> <li>• Excess finishing gum</li> </ul>  | <ul style="list-style-type: none"> <li>• Increase dosage</li> <li>• Raise water metering speeds</li> <li>• Reduce pressures slightly</li> <li>• Reduce ink sweep and/or lighten setting to plate</li> <li>• Wash plate – warm water</li> </ul>  |
| <b>Slow/Poor Restarts</b>                      | <ul style="list-style-type: none"> <li>• Dosage too low</li> <li>• Sensitive plates</li> <li>• Too little plate protectants</li> <li>• Excessive downtime</li> <li>• Water form lifting early</li> <li>• Plate dries out too much</li> </ul>    | <ul style="list-style-type: none"> <li>• Increase dosage</li> <li>• Clean with plate cleaner</li> <li>• Change fountain solution</li> <li>• “Gum in” plates</li> <li>• Revise shutdown procedure</li> <li>• Change fountain solution</li> </ul> |
| <b>High Water Metering Speeds</b>              | <ul style="list-style-type: none"> <li>• Dosage too low</li> <li>• Insufficient wetting</li> <li>• Dampening system nips too tight</li> <li>• Metering/water from durometers too high</li> </ul>  | <ul style="list-style-type: none"> <li>• Increase dosage</li> <li>• Revise dosage to increase</li> <li>• Lighten up settings</li> <li>• Replace with proper durometer</li> </ul>  |
| <b>Scumming/Dry-Ups at Outer Edges of Form</b> | <ul style="list-style-type: none"> <li>• Dosage too low</li> <li>• Insufficient wetting</li> <li>• Too much pressure-dampening system roll ends</li> <li>• Insufficient skew</li> </ul>   | <ul style="list-style-type: none"> <li>• Increase dosage</li> <li>• Revise dosage to increase</li> <li>• Lighten up settings</li> <br/> <li>• Increase if possible</li> </ul>   |
| <b>Roller Stripping</b>                        | <ul style="list-style-type: none"> <li>• Fountain solution less than pH 3.5</li> <li>• High water speeds causing waterlogged ink</li> <li>• Ink Water Pick-up Units too low</li> <li>• Glazed ink rollers</li> <li>• Dosage too high</li> </ul> | <ul style="list-style-type: none"> <li>• Change fountain solution</li> <br/> <li>• Revise dosage to reduce water speeds</li> <li>• Reformulate ink</li> <li>• Remove glaze</li> <li>• Reduce dosage</li> </ul>                                  |
| <b>Emulsified Roller Train</b>                 | <ul style="list-style-type: none"> <li>• Fountain solution less than pH 3.5</li> <li>• High water speeds</li> <br/> <li>• Ink/fount incompatibility</li> <li>• Dosage too high</li> <li>• Ink water pick up to low</li> </ul>                   | <ul style="list-style-type: none"> <li>• Change fountain solution</li> <br/> <li>• Revise dosage to reduce water speeds</li> <li>• Change fountain solution</li> <li>• Reduce dosage</li> <li>• Reformulate ink</li> </ul>                      |

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| <b>Problem</b>                                  | <b>Possible Cause</b>   | <b>Suggested Remedy</b>   |
|---|---|---|
| <b>Ink Piling</b>                               | <ul style="list-style-type: none"> <li>• Fountain Solution less than pH 3.5</li> <li>• Ink/fount imcompatibility</li> <li>• Blanket under-packed</li> <li>• Not enough release agent in the ink</li> <li>• Ink too tacky/too stiff/dries too fast on roller/plates</li> <li>• Poor blanket release</li> </ul> | <ul style="list-style-type: none"> <li>• Change fountain/solution</li> <li>• Change fountain solution</li> <li>• Increase packing .001" to .002"</li> <li>• Reformulate ink</li> <li>• Reformulate ink</li> <li>• Quicker release type blanket</li> </ul> |
| <b>Tinting/Toning</b>                           | <ul style="list-style-type: none"> <li>• Fountain solution pH less than pH 3.5</li> <li>• Dosage too low</li> <li>• Ink breaking down</li> <li>• Sensitive plates</li> <li>• Fountain solution higher than pH 5.5</li> </ul>  | <ul style="list-style-type: none"> <li>• Change fountain solution type</li> <li>• Increase dosage</li> <li>• Revise dosage to decrease wetting/reformulate ink</li> <li>• See Sens. Plate Remedies</li> <li>• Replace with fresh solution</li> </ul>      |
| <b>Ink Stays Wet Too Long</b>                   | <ul style="list-style-type: none"> <li>• Fountain solution less than pH 3.5</li> <li>• Ink film too thick/ink too weak</li> <li>• Too much water in ink/ink is waterlogged</li> <li>• Not enough/wrong drier</li> <li>• Paper too acidic</li> </ul>   | <ul style="list-style-type: none"> <li>• Change fountain solution</li> <li>• Reduce settings/reformulate ink</li> <li>• Revise dosage to reduce water settings</li> <li>• Consult ink vender</li> <li>• Change paper</li> </ul>                           |
| <b>Plate Staining/Picture Framing</b>           | <ul style="list-style-type: none"> <li>• Improper ink/water balance</li> </ul>  | <ul style="list-style-type: none"> <li>• Revise dosage to change wetting /change solution</li> </ul>  |
| <b>Foam In Reservoir</b>                        | <ul style="list-style-type: none"> <li>• Too cold</li> <li>• Solution contaminated</li> <li>• Mechanical reasons</li> </ul>   | <ul style="list-style-type: none"> <li>• Raise to about 15° C ± 8%</li> <li>• Dump and replace with fresh</li> <li>• Many - see our TechTalk</li> </ul>   |
| <b>Poor Ink Rub/Scuff</b>                       | <ul style="list-style-type: none"> <li>• Ink film too thick</li> <li>• Not enough/wrong wax and/or slip agents</li> </ul>   | <ul style="list-style-type: none"> <li>• Reduce settings/reformulate ink</li> <li>• Consult ink vendor</li> </ul>   |
| <b>Fountain solution less than pH 3.5</b>       | <ul style="list-style-type: none"> <li>• Fountain solution concentrate is too acidic for the water used</li> <li>• Excessive use of pH-lowering additives</li> </ul>  | <ul style="list-style-type: none"> <li>• Change fountain solution type</li> <li>• Reduce/eliminate use</li> </ul>   |
| <b>Scumming – one side of press only</b>        | <ul style="list-style-type: none"> <li>• Improper roller settings</li> </ul>  | <ul style="list-style-type: none"> <li>• Reset rollers</li> </ul>   |
| <b>Rapid increase in pH and/or conductivity</b> | <ul style="list-style-type: none"> <li>• Inadequate buffer capacity</li> <li>• Dosage too low</li> <li>• Inadequate filtration</li> </ul>   | <ul style="list-style-type: none"> <li>• Change solution to one with more buffer capacity</li> <li>• Increase dosage (provides more buffer capacity)</li> <li>• Improve filtration system</li> </ul>  |

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|   |  |  |
|---|--|--|
|   | <ul style="list-style-type: none"> <li>Excess materials leaching out of paper and ink</li> </ul>   | <ul style="list-style-type: none"> <li>Consult vendors</li> </ul>  |
| <b>Feedback in dampening system</b>                                 | <ul style="list-style-type: none"> <li>Improper ink/water balance – water too low and/or high for the amount of ink</li> <li>Sensitive chrome roller</li> <li>Ink/Fount incompatibility</li> </ul>   | <ul style="list-style-type: none"> <li>Change water metering settings</li> <li>Desensitize chrome roller</li> <li>Change fountain Solution</li> </ul>  |
| <b>Color Variation (surging)</b>                                    | <ul style="list-style-type: none"> <li>Too much wetting</li> <li>Ink/fount incompatibility</li> <li>Ink improperly formulated</li> </ul>   | <ul style="list-style-type: none"> <li>Revise dosage to reduce</li> <li>Change fountain solution type</li> <li>Consult ink vendor</li> </ul>   |
| <b>Paper Piling on non-image areas of blanket</b>                   | <ul style="list-style-type: none"> <li>Dosage too low</li> <li>Not enough anti-pile</li> <li>Under-packed blanket</li> <li>Water speeds too low</li> <li>Paper with poor water resistance</li> </ul> | <ul style="list-style-type: none"> <li>Increase dosage</li> <li>Add separate anti-pile or switch to solution that contains more anti-pile</li> <li>Add .025 - .050mm packing</li> <li>Raise slightly</li> <li>Reduce water speeds or consult paper vendor</li> </ul> |
| <b>Excessive Dot Gain</b>   | <ul style="list-style-type: none"> <li>Improper dosage – too low or too high</li> <li>High water speeds</li> <li>Blankets over-packed</li> <li>Ink too soft/too low in tack</li> </ul>               | <ul style="list-style-type: none"> <li>Revise dosage</li> <li>Increase dosage/wetting</li> <li>Reduce packing .025 - .050mm</li> <li>Reformulate ink</li> </ul>  |
| <b>Rapid increase in conductivity, pH stays relatively constant</b> | <ul style="list-style-type: none"> <li>Excessive use of additives such as fountain drier</li> <li>Poor stock</li> </ul>  | <ul style="list-style-type: none"> <li>Reduce/eliminate use</li> <li>Consult paper vendor</li> </ul>   |
| <b>Mottled/Snow flaked Dots</b>                                     | <ul style="list-style-type: none"> <li>More water than ink can emulsify</li> <li>Water speeds too high</li> <li>Poor quality emulsion</li> </ul>   | <ul style="list-style-type: none"> <li>Increase ink WPU</li> <li>Revise dosage to reduce water speeds</li> <li>Consult ink and fountain solution vendors</li> </ul>  |

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