

# Reeves' Complete Guide To Blanking

## Trouble

## Cause

## Solution

Ink emulsification

1. Fountain overfeed
2. Extreme water pick-up of ink
3. Too "sharp" fountain solution
4. Too much alcohol in fountain
5. Poor ink quality
6. Too thin ink
7. pH too high (over 6 pH)
8. Form roller setting to plate
9. Poor ink transfer to stock

Reduce water quantity  
 Try ink with lower pick-up  
 Adjust pH to 5-5, 5  
 Adjust percentage to about 15%  
 Try higher quality ink  
 Try thicker ink or add varnish  
 Adjust pH to 5-5, 5  
 Adjust proper pressure  
 Check nip pressure of plate/blanket/stock

Doubling in the print  
(circumferentially)

1. Blanket loose
2. Improper web tension (on webs)
3. Untrue rolling conditions
4. Mechanical defects
5. Different blanket types
6. Unsuitable subject lay down
7. Different packing thickness
8. Wet/damp packing
9. Improper packing height

Check blanket tension  
 Readjust tension  
 Synchronize cylinder speeds  
 Inspect mechanical conditions  
 Ensure that blankets in press are all of same type  
 Try to modify your ink tack accordingly  
 Ensure same packing height  
 Change packing, reduce amount of solvent for blanket cleaning  
 Adjust packing to requirements

Doubling in the print  
(laterally)

1. Incorrect paper quality
2. Improper packing height
3. Underpacking thickness variation
4. Mechanical settings
5. Incorrect blanket direction
6. Blanket uniformity
7. Mechanical inconveniences

Ensure paper quality  
 Adjust packing to requirement  
 Ensure that packing is 100% equal on both sides  
 Ensure the cylinders are adjusted 100% "spirit level"  
 Ensure correct blanket installation  
 Check blanket for uniformity  
 Check mechanical conditions of press

Dot gain too high

1. Indentation value too high
2. Untrue rolling conditions
3. Too much water in ink
4. Form roller setting to plate
5. Unsuitable ink tack
6. Ink overload
7. Unsuitable blanket surface
8. Ink temperature too high

Readjust to recommended value  
 Synchronize rolling conditions  
 Adjust ink water balance to lower level or use different ink  
 Adjust setting to recommendation  
 Change ink to higher tack ink  
 Reduce ink value to optimum level for contrast/density  
 Change to blanket with very low dot gain value  
 Keep ink level in fountain low for frequent refreshing

Ink accumulation on  
blanket in non-image  
area

1. Too low dampening level
2. Too "fast" ink
3. Ink tack too high
4. Indentation in blanket/blanket nip too low
5. Blanket surface too smooth
6. Blanket surface too tacky
7. Blanket exposed to heat

Increase water supply to blanket surface  
 Change color sequence or use "slower" inks  
 Reduce ink tack  
 Check indentation value  
 Use rougher surface blanket  
 Avoid the use of rejuvenators  
 Keep heat of dryer away from blankets in last unit

Linting

1. Loose fibers of paper
2. Ink tack too high
3. Dampening of previous cylinders too high
4. First impression
5. Insufficient nip pressure

Change paper quality  
 Reduce tack  
 Reduce water to the paper  
 If possible, pre-squeeze the paper in a previous unit  
 Adjust indentation value, repack

Piling

1. Ink tack too high
2. Coating containing (excess) moisture
3. Insufficient nip pressure
4. Unsuitable paper

Use ink with lower tack or modify  
 Reduce water on previous unit  
 Adjust indentation value  
 Change paper quality

Blanket  
delamination

1. Dry ink accumulation
2. Ink accumulation on outside edges
3. Too high indentation
4. Swollen packing and blanket
5. Plate edge cutting in blankets
6. Unsealed blanket edges
7. Damaged blanket surface

Increase water supply to blanket surface  
 Reduce width of blanket underpacking to minimum possible  
 Reduce packing  
 Change underpacking, avoid solvent penetration under blanket  
 Remove burrs  
 Ensure edge sealing  
 Avoid blanket surface destruction

# Most Problems, Causes, & Solutions

Trouble	Cause	Solution
Paper edge marking	<ol style="list-style-type: none"> <li>1. Sharp edges of print stock</li> <li>2. Coating and fiber accumulation</li> <li>3. Cutting knife of cutting machine</li> <li>4. Low compressible blanket</li> <li>5. Too high nip pressure</li> </ol>	<ul style="list-style-type: none"> <li>Keep packing smaller than stock</li> <li>Keep blankets clean</li> <li>Change knife</li> <li>Change blanket quality</li> <li>Adjust indentation value</li> </ul>
Poor solids	<ol style="list-style-type: none"> <li>1. Ink/water balance too high</li> <li>2. Indentation values too low</li> <li>3. Uneven packing</li> <li>4. Too soft underpacking</li> <li>5. Old or smashed blankets</li> <li>6. Talc remnants on surface of blanket</li> <li>7. Ink roller adjustment</li> <li>8. Ink tack too high</li> <li>9. Destroyed print surface of plate</li> <li>10. Improper ink sequence</li> </ol>	<ul style="list-style-type: none"> <li>Reduce balance</li> <li>Adjust value, increase packing</li> <li>Use calibrated underpacking</li> <li>Use polyester foil or hard packing</li> <li>Replace blankets or underpacking</li> <li>Run a few sheets without water and clean blanket thoroughly</li> <li>Ensure proper adjustment</li> <li>Reduce tack</li> <li>Change plate</li> <li>Change sequence</li> </ul>
Gauge loss	<ol style="list-style-type: none"> <li>1. Blanket tension too high</li> <li>2. Unsuitable blanket quality</li> <li>3. Too much nip pressure</li> <li>4. Ink and paper mist accumulation</li> <li>5. Mechanical conditions of press</li> </ol>	<ul style="list-style-type: none"> <li>Reduce tension according to recommendation</li> <li>Change blanket quality</li> <li>Reduce indentation values</li> <li>Try to keep blanket clean</li> <li>Try blanket with high packing latitude</li> </ul>
Poor sheet release	<ol style="list-style-type: none"> <li>1. Ink tack too high</li> <li>2. Untrue rolling conditions</li> <li>3. Surface swelling of blanket</li> <li>4. Ink too "fast"</li> </ol>	<ul style="list-style-type: none"> <li>Reduce tack</li> <li>Synchronize cylinder speeds</li> <li>Use less aggressive solvents</li> <li>Use "slower" ink</li> </ul>
Excessive plate wear	<ol style="list-style-type: none"> <li>1. Indentation value too high</li> <li>2. Untrue rolling conditions</li> <li>3. Blanket too hard</li> <li>4. Ink too "dry"</li> <li>5. Form roller setting too hard</li> <li>6. Developer too aggressive</li> <li>7. Acid value in dampening water too high</li> <li>8. Wrong direction of blanket</li> <li>9. Excess moisture in packing</li> <li>10. Blanket too loose</li> </ol>	<ul style="list-style-type: none"> <li>Readjust to recommendation</li> <li>Synchronize cylinder speeds</li> <li>Use blanket with different value</li> <li>Contact ink manufacturer</li> <li>Readjust form roller to plate</li> <li>Recheck developer mixture</li> <li>Readjust pH to 5-5, 5</li> <li>Recheck proper blanket mounting</li> <li>Recheck proper conditions of plate and blanket packing</li> <li>Retension blanket</li> </ul>
Gapping of blankets on double-width presses	<ol style="list-style-type: none"> <li>1. Excess moisture on outside edges of blanket/packing</li> <li>2. Too high indentation</li> <li>3. Blanket too loose</li> <li>4. Mechanical conditions</li> </ol>	<ul style="list-style-type: none"> <li>Change either one or both and avoid excess solvent</li> <li>Readjust value to recommendation</li> <li>Retension blankets</li> <li>Use blanket with high packing latitude</li> </ul>
Paper overfeed on web presses	<ol style="list-style-type: none"> <li>1. Indentation value too high</li> <li>2. Unsuitable blanket characteristics</li> <li>3. Blanket too hard</li> <li>4. Mechanical conditions of press</li> </ol>	<ul style="list-style-type: none"> <li>Reduce value to recommendation</li> <li>Use a more "neutral" blanket</li> <li>Use blanket with higher compressibility</li> <li>Use blanket with different characteristics</li> </ul>
Relief structure on blanket surface	<ol style="list-style-type: none"> <li>1. Excessive lint build-up in non-image area</li> <li>2. Excessive ink accumulation on blanket surface</li> <li>3. Ink build-up on impression cylinder</li> <li>4. Minerals in ink make surface swell</li> </ol>	<ul style="list-style-type: none"> <li>Keep blankets cleaner, reduce dampening on previous cylinders, change paper quality</li> <li>Increase alcohol on previous units, check pH of dampening water, keep blanket clean, reduce ink tack</li> <li>Keep impression cylinder clean</li> <li>Use blanket of higher quality</li> </ul>
Blanket surface glazing	<ol style="list-style-type: none"> <li>1. Remnants of paper coating</li> <li>2. Additives in fountain solution</li> <li>3. Oxidation</li> <li>4. Untrue rolling conditions</li> <li>5. Ink drier additives</li> <li>6. Unsuitable solvents</li> </ol>	<ul style="list-style-type: none"> <li>Use anti-glazing solvents daily, contact your paper supplier</li> <li>Contact your solution supplier</li> <li>Avoid UV ray exposure</li> <li>Synchronize cylinder speeds</li> <li>Avoid use of additives</li> <li>Use only recommended cleaning solvents</li> </ul>

# Tensioning

## Guidelines

Precise blanket tensioning can:

- guarantee blanket conformance to the blanket cylinder surface, particularly at the gap;
- prevent the shifting of underpackings; and
- avoid blanket movement during printing.

The exact amount of tensioning will depend on your press and design of your lock-up system. We can recommend—but not guarantee—precise tensioning torques. Tensioning varies by press, therefore consider these conditions before tensioning.

- Type and design of the blanket lock-up system
- Amount of tension transmitted to the blanket from the lock-up system (Depending on its gear ratios, the lock-up system can transmit either a fraction of or a multiple of the initial tension.)
- Diameter of the blanket cylinder
- Type of underpacking used
- Cleanliness, lubrication, and wear of the blanket cylinder lock-up system
- Variations in the stretch properties of different blanket types
- Variations in mounting techniques of different operators

Tensioning can be initiated at one end of the blanket or simultaneously on both the leading and the trailing ends. In the first case, greater tension should be applied to the trailing end only. The leading edge should receive only a very small amount of the original tightening force.

To distribute the tension proportionally throughout the blanket and around the cylinder, follow this procedure. Let the press run for some time with the plate and blanket cylinder impressions “on” and the ink and fountain rollers “off.”

## Improper Tensioning

Overtensioning can cause:

- high gauge loss,
- cracking at the gap, and
- bar pull-off.

Insufficient tensioning can cause:

- doubling,
- slurring,
- blanket movement,
- registration shifts, and
- plate wear.

## Retensioning

Retensioning assures a proper fit, but retensioning after every production run is not recommended. Vulcan blankets are low-stretch blankets. Therefore, if the blanket continues to require retensioning, consider these causes:

- rolling conditions,
- too much underpacking (too much indentation), or
- a defective lock-up system.



Printing Products Group, USA  
 P.O. Box 1531  
 Spartanburg, S.C. 29304  
 1-800-344-0714  
 864-576-9210  
 www.reevesbrothers.com

Lithographed in USA from a Vulcan® Offset Blanket.

# Torque Tensioning Chart

Press Manufacturer	Model	Torque (Note)
Baker Perkins	G-12	55 ft. lbs.
Baker Perkins	G-14	62-65 ft. lbs.
Baker Perkins	G-16	62-65 ft. lbs.
Goss	Community	45-55 in. lbs.*
Goss	Suburban	45-55 in. lbs.*
Goss	Urbanite	45-55 in. lbs.*
Goss	Cosmo	45-55 in. lbs.*
Goss	Metro	45-55 in. lbs.*
Goss	Headliner	45-55 in. lbs.*
Goss	Metroliner	45-55 in. lbs.*
Goss	Colorliner	45-55 in. lbs.*
Goss	C-500	35 ft. lbs.
Goss	C-700	80 ft. lbs.
Hantscho	Mark VI	50 ft. lbs.
Hantscho	Mark VII	50 ft. lbs.
Harris	M-80, M-90	25 in. lbs.
Harris	M-110, M-120	25-30 in. lbs.
Harris	M-200	25-30 in. lbs.
Harris	M-300	35-40 in. lbs.
Harris	M-1000	160-180 in. lbs.
Harris	NC-400, NC-450	40-45 in. lbs.
Harris	N-900 III	180 in. lbs.
Harris	N-936, N-945	30-35 ft. lbs.
Harris	N-954, N-966	30-35 ft. lbs.
Harris	N-9000	30 ft. lbs.
Harris	N-1700	30 ft. lbs.
Harris	845	45 in. lbs.
Harris	850	15 ft. lbs.
Harris	V-15, V-25	35-45 in. lbs.
Heidelberg	Web 8	25 ft. lbs.
Heidelberg	Web 16	45 ft. lbs.
Heidelberg	Speedmaster	40-45 ft. lbs.
Komori	L50	50 ft. lbs.
M.A.N.	Rotoman	45 ft. lbs.
M.A.N.	Lithoman	45 ft. lbs.
M.A.N.	Colorman	50-55 ft. lbs.
M.A.N.	Uniman 4/2 "T-Bar"	45 in. lbs.
Miller	(All)	40 ft. lbs.
Miehle	40 in.	50 ft. lbs.
Mitsubishi	L750C	55 ft. lbs.
Roland	600	33 ft. lbs.
Royal Zenith	420	40 in. lbs.
Solna	C-96	31 ft. lbs.
Toshiba Web	—	80-100 in. lbs.

Note: Values listed are nominal and may vary depending on age and condition of press.

\* except outside bolts

# REEVES TROUBLESHOOTER

*Vulcan® offset printing blankets offer cost-effective solutions for pressmen who insist on quality. For sheetfed, web, high-speed newspaper, business forms, or boxboard printing, Vulcan has the blanket that's right for your job.*



## **Vulcan Reflection® & Reflection SRF**

High-durability compressible blankets for sheetfed and web presses. Available in two face surfaces.

## **Vulcan Horizon™**

High-durability compressible blanket for high-speed web presses.

## **Vulcan 2000® Plus & 2000® Plus SR®**

Two compressible blankets for high-speed web or sheetfed. 2000 Plus for normal release; Plus SR for super release.

## **Vulcan® 10 & 20 Plus No Pak™**

High-speed web blankets for single- and double-width newspaper presses.

## **Vulcan Genesis®**

A compressible sleeve blanket designed for the M-3000 press.

## **Vulcan® RF 901™ Sticky Back**

Adhesive-backed, two-ply compressible blanket for business forms printing.

## **Vulcan® ND 999™ Sticky Back**

Adhesive-backed, two-ply, non-directional compressible blanket for business forms.

## **Vulcan 714®**

Industry's first compressible blanket.

## **Vulcan Com No Pak™**

A new compressible blanket designed specifically for use without packing sheets.

## **Vulcan Marathon®**

Durable compressible blanket for web presses.

## **Vulcan 578® SR**

Conventional blanket for quick release, high-quality printing, and long service life.

## **Vulcan UV™**

A premium compressible blanket for metal decorating and packaging.

## **Vulcan 914™**

A new compressible blanket for metal decorating and packaging using conventional inks.



**REEVES  
BROTHERS, INC.**