IMPERIAL RUBBER PRODUCTS INC.

Precision Rollers You Can Rely On™

Imperial Rubber Products Inc.
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Process Audit

for

CUSTOMER_NAME

Machine: Man Roland Press #524

Location: City, State

Date of Audit: March 19, 2008

Imperial Executive Performing Audit: Ron Hill, CEO

Customer Representative Attending Audit: Name

Scope:
This provides a written summary of our observations and recommendations from the audit we performed recently at your production facility. We examined the equipment on the production line, interviewed your personnel, and inspected your roll storage area to gather first-hand information on the vital factors we have learned are most critical to your success using our rollers.

Purpose of Audit:
1) To provide you outside perspective and expert advice on how rollers are used in your operation, and
2) To provide recommendations on how you can:
    a. Reduce down time
    b. Reduce scrap
    c. Improve efficiency
    d. Lower costs

Critical to Quality:
The audit and this report cover our evaluation of four factors in your operation which are Critical to Quality (CTQs):

- Stripe Settings
- Durometer
- Wash-up Procedure
- Roll Storage

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Observations

Stripe Settings:

Unit 4

On print station 4 we checked stripes on the 91mm Ink Forms, Water Forms and Pan Rollers in both top and bottom units.

91mm Ink Forms

- **On the top unit 91mm Form** we found the stripe to the plate to be 6mm on one end of the roller and 3mm on the other end. That same roller to the vibrator checked 8mm all the way across with some slight unevenness.

- **On the bottom unit 91mm Form** we found the stripe to the plate to be 3mm all the way across with some slight unevenness. That same roller to the vibrator checked 6mm all the way across.

- **The press spec** calls for a 6mm stripe to the plate and a 7mm stripe to the vibrator.

Water Forms

- **Top unit** Water Form we found the stripe to the plate to be 9mm on one end and 5 mm on the other.

- **Bottom unit** Water Form we found the stripe to the plate to be 9mm on one end and 8mm on the other.

- **The press spec** calls for a 7mm stripe to the plate.

Pan Rollers

- **Top unit** Pan we found the stripe to be 7mm on the ends and 8mm in the middle.

- **Bottom unit** pan we found the stripe to be 7mm on the ends and 8mm in the middle.

- **The press spec** calls for 7mm on the ends and 8mm in the middle.

Unit 2

We found that all the stripe settings on unit 2 with the same rollers were pretty close to being like Unit 4 and in the same condition.

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Durometer:

Unit 4

Ink Forms

- Upper 91mm form checked 42 durometer
- Lower 91mm form checked 46 durometer
- Press spec for a new roller is 28 to 30 durometer

Water Forms

- Upper and lower water forms could not be checked with out removing a few rollers. We were able to get a finger in to feel the rollers and they felt a bit hard and out of spec.
- Press spec for a new roller is 25 to 28 durometer

Pan Rollers

- Both upper and lower Pan Rollers checked 30 durometer.
- Spec for that position is 25 durometer or a special hydrophilic roller of some kind.

Unit 2

We found that the durometer on all the same rollers in unit 2 where fairly close in Durometer readings to unit 4.

Wash-up Procedure:

P2 states that the roller train is hardly ever washed up. He estimated maybe once a month or less. When the press is washed up they use wash up trays and wash the rollers with a combination 1 step blanket and roller wash.

Check Roll Storage:

The spare rollers are stored on a free standing rack that appears to have been built to hold these particular rollers. The rack was close to the printing units and appeared to be readily accessible. The rollers were stored properly with no rubber to rubber contact and appeared to be well protected from any possible damage while on the rack.

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Analysis

Stripe Settings:
None of the stripe settings with the exception of the Pan rollers were any where close to being at spec. The P2 is well aware of the stripe setting procedure and knows the proper setting for each roller in the train. A diagram of the roller train with all the stripe settings is attached to the side frame of the press for easy referral. P2 uses a proper stripe gauge to set the stripes and in fact had one in his possession during the audit. The stripe settings were not able to be obtained because the rollers we checked were hard and uneven and should be changed.

Durometer:
As stated in the durometer section above all the rollers with the exception of the pan rollers were way too hard and out of spec. All of these rollers have gotten hard and shrunk. When a rubber roller gets hard and shrinks as much as these have they do not shrink evenly. There would be no way to set a proper stripe especially on those rollers that checked in the 42 to 46 durometer range.

This press came from another facility and all the spare rollers are showing labels that date back 10 years. If the spare roller labels are showing to be 10 years old it is reasonable to assume that the rollers in the press may be that old or older which would explain why they are in such bad shape. We checked the roller condition and durometer of the spare rollers on the rack and found them to be just slightly harder than spec but again most were 10 years old and if put in the press would not last very long.

We found during the durometer check of the spares that there were quit a few 80mm middle forms that were covered in Hickey Picker material and were checking 38 durometer. These rollers were about 10 years old as well and did not look to be in good shape. We do not believe that this press needs to have a Hickey Picker roller and believe that these could be causing print quality problems.

We found that of the 15 spare form rollers 12 were covered to 80mm, 2 were covered to 87mm and only 1 was covered to 91mm. Of the 12 80mm forms 5 were Hickey Picker and 7 were regular rubber.

There are no spare shafts for any of the form rollers on the rack.

Wash-up Procedure:
Not much to add here. Even though the roller train is not washed up often the rollers did not appear to have any excessive ink build up or paper dust on them. Not washing the rollers is good for the rubber and extends the life.

The only thing we would suggest is that we get a sample of the wash and send it out for testing. If this is a blanket wash being used on rollers it could be harmful. Blanket wash is usually stronger than roller wash and we have had problems here in the past. If the blanket wash is too harsh it could cause the rollers to shrink and get hard.

Roll Storage:
The roll storage is perfectly acceptable. The racks are sturdy and built correctly to hold the rollers from this press.

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Recommendations:

1) For immediate print quality improvement the 3 ink forms, 1 water form and the pan roller should be changed in every unit.

2) The transfers and doctors can be changed after this is done. To do 1 tower would require 6 ink forms 2 water forms and 2 Pans for a total of 10 rollers. If we did one tower a week we could be done in 5 weeks with the expense spread out over that period. You do not have enough total spares on the rack to do any more than 1 tower as you only have 2 water forms and 2 pans.

3) We would recommend that you take the 15 ink Forms that are on the rack and have them all recovered before we start. We should take the uneven number as stated above and make 5 of each size as each unit uses an equal amount of each. We should not recover any back to Hickey Picker unless you feel you need them for some reason.

4) We would also recommend that you cover the Pan rollers in our yellow Aquamaster material. This material is made especially for continues feed dampening system pan rollers. The surface tension of the rubber allows the fountain solution to film on the roller rather than bead which results in more water carrying capability and an even film. The roller is about 32 durometer which will allow it to wear well but carry water like a soft 22 durometer. It has a 15% up charge but well worth it for print quality and wear and tear.

5) One last thing you might want to consider is to purchase some spare shafts for the spare rollers on the rack. If you do that when you send them to us to recover we could return them press ready if you desire.

6) [Name of Attendant Withheld] is to be commended. He cooperated fully with the audit and added much insight to the problems with the press and had a sincere desire to want to help with the fix. He was a pleasure to work with.

If we can assist in any other way please do not hesitate to contact us.

Sincerely,

IMPERIAL RUBBER PRODUCTS, INC.

Ron Hill
President