Trouble Shooting Banding

Banding, like most printing issues, can be caused by many reasons. Banding is classified by horizontal stripes running in the scan direction of the print. Although banding can be caused by many reasons and described in many ways this checklist will help to eliminate the amount of banding seen on a device.

This is a sample of a type of banding that is being caused by drop out or the failure of the head to fire. The head could be dirty and need cleaning, the dampers or manifold may be failing or possibly the head has exceeded its lifespan and needs to be replaced.

Banding such as this is an indication that the media feed calibration is not set properly. In an instance such as this the feed calibration would need to be increased to bring the print passes apart to remove the overlap.

1. Perform a nozzle test pattern to make sure all of the heads are firing properly. If not perform cleanings until the test pattern is correct.

2. Print a Service and History report and look for the shot counts on the print heads (any over 5 billion shots have exceeded their life and may be suspect) and servo errors to indicate head strikes which can damage print heads. The sample below shows a nozzle test pattern which indicates print head damage from a head strike. Notice the two horizontal lines which run

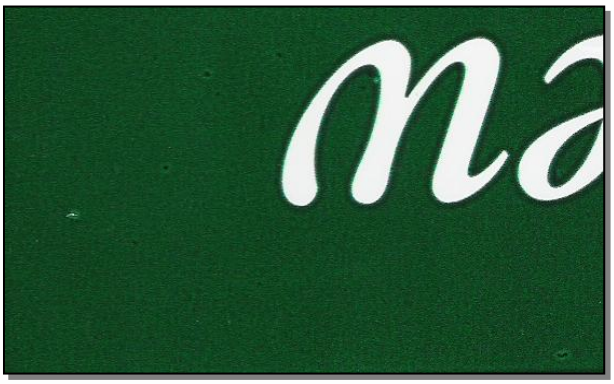
completely through the print area. These will cause banding and can not be repaired. A quick visual inspection of the print heads will confirm the damage. Look for the surface area of the print head to be scratched or dented. Print heads with this type of damage must be replaced and are not covered under warranty due to misuse by the end user.

3. Perform test prints on Roland Media with a Roland Profile. 3rd Party Materials hold different ink levels than Roland Certified Media and to properly trouble shoot the situation the control factor introduced by using Roland Media and Versaworks with the proper output profile associated is needed. This step is critical in isolating if there is a problem with the printer itself or if it is a media/software issue.

4. Make sure the proper media feed calibration is set and that it is not being overwritten by the RIP software. Also check to insure that media is feeding properly from the roll, the media flanges are being used and that the roll does not exceed the specified weight limit for the machine. Using the Prefeed option on the machine helps to isolate a situation where there is a feeding issue.

5. Check condition of the wipers. Heads that are not properly cleaned will have ink build up which can wick across the head and cause drop out which creates banding.

6. Perform a thorough manual cleaning of the print heads, cap tops, wipers, wiper scraper and serge mist filter. Replace consumable parts that appear worn.



7. Check that heater settings are correct and that the heater voltage switches on the underside of an SP series machine are set properly. The image to the right shows a heater setting that is too low, causing an “orange peel” effect. The image to the left shows a heater setting that is set too high can cause a lighter banding effect. The additional heat causes dot

gain to be reduced which means the ink to dries quicker than expected leaving white areas from where the droplets should have spread out before drying.

8. Check the wire/belt tension and correct if needed.

9. Check all head alignments and calibrations and adjust if needed.

10. Perform a fill pattern in the service menu to isolate the print heads and see if banding shows up here in a specific color.

11. Check damper condition on colors that appear to be banding, replace if needed.

12. Check print head manifold on colors that appear to be banding, replace if needed. Part number US-MANIFOLD.

13. Replace the troubled print head.

NOTE:
Keep in mind something that is known in the industry as the “lawn mower effect” can sometimes be referred to as banding. The “lawn mower effect” is basically a slight difference in hue on a print in one pass direction compared to the other when printing in a bi-directional mode. This type of banding is not actually banding at all and only a difference between the print head placing the dots in outgoing and return pass since each pass places ink down the in opposite order. This can be minimized by increasing the print quality or increasing the number of print passes. This effect can be eliminated completely by printing in the uni-directional mode.