

3. IMAGE QUALITY

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IQ 1 IMAGE QUALITY DEFECT ENTRY RAP

PROCEDURE

CAUTION

The drum can become light-shocked if exposed to external light sources for three minutes or longer. The result is poor print quality performance (usually appearing as dark streaks). This can be corrected in most cases by “dark resting” the drum (with the machine in Standby and all covers properly installed). Do not allow the drum to be exposed to external light sources.

1. Select the SERVICE Menu and print the PQ Set test patterns. These test patterns are generated in the ESS.
2. Print the IOT Test Pattern.
3. Inspect the test prints for image quality defects.

NOTE: If a defect is present on both prints, the defect is probably IOT related. If the defect is not present on both prints, the defect is probably ESS related. Be careful with this assumption however, since the IOT test pattern may mask some defects.

NOTE: Look carefully at the basic colors (K, C, M, Y). If a defect only shows on one of the basic colors, suspect a developer related problem.

4. Locate The Defect in Table 1, and perform the corresponding corrective action.

Defect Name / Description	Possible Causes	Corrective Action							
1. BACKGROUND (OVERALL).	1. Density out of adjustment.	1. Perform the Density and Color Balance Adjustment. (ADJ. 3.1).							
	2. Color balance out of adjustment.	2. Perform the Density and Color Balance Adjustment. (ADJ. 3.1).							
	3. Print Drum Module failure.	3. Replace the Print Drum Module.							
	4. Developer failure or near end of life.	4. Replace the developer module(s).							
	5. Print Drum Arcing.	5. Refer to OF8 Arcing RAP in Section 2.							
	6. New developer assembly did not initialize.	6. Run a Diagnostic Sheet and check the Toner Concentration Setpoints for newly installed developer assembly. If the Setpoints are at 70 (default), replace the developer assembly.							
	7. Dirty Printer (Sump Full).	7. Refer to BSD 9.21 and check the Waste Toner Full signal, CN102-3, for a short to ground.							
	8. Extraneous light leak.	8. Ensure the printer is not in direct sunlight.							
	9. Temperature/RH Sensor failure.	9. If the readings on the diagnostic sheet are out of range (RH=0 or RH > 100, or Temp=0), refer to the chart below: <table border="1" data-bbox="1379 983 1966 1225" style="margin: 10px auto;"> <thead> <tr> <th data-bbox="1379 983 1487 1054">Diag. Sheet</th> <th data-bbox="1487 983 1966 1054">Refer to BSD 9.19 and check:</th> </tr> </thead> <tbody> <tr> <td data-bbox="1379 1054 1487 1094">RH=0</td> <td data-bbox="1487 1054 1966 1094">CN105-1, Humidity Sense, for a short to ground.</td> </tr> <tr> <td data-bbox="1379 1094 1487 1161">RH > 100</td> <td data-bbox="1487 1094 1966 1161">CN105-1, Humidity Sense, for an open. CN105-2, Humidity Sense, GND for an open.</td> </tr> <tr> <td data-bbox="1379 1161 1487 1225">Temp=0</td> <td data-bbox="1487 1161 1966 1225">CN105-5, Temp. Sense, for an open or short to ground.</td> </tr> </tbody> </table> <p data-bbox="1379 1233 1966 1297">If the wiring checks OK, replace the Temperature/Humidity Sensor.</p>	Diag. Sheet	Refer to BSD 9.19 and check:	RH=0	CN105-1, Humidity Sense, for a short to ground.	RH > 100	CN105-1, Humidity Sense, for an open. CN105-2, Humidity Sense, GND for an open.	Temp=0
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Temp=0	CN105-5, Temp. Sense, for an open or short to ground.								

Defect Name / Description	Possible Causes	Corrective Action							
2. BACKGROUND (BLACK).	1. Developer Failure.	1. Replace the Black Developer Module.							
	2. New developer assembly did not initialize.	2. Run a Diagnostic Sheet and check the Toner Concentration Setpoints for newly installed developer assembly. If the Setpoints are at 70 (default), replace the developer assembly.							
	3. No Black Developer Bias.	3. Refer to BSD 9.1 and check the Black Developer Bias voltage. If the voltage is present, check the Black Developer Bias lead for an open. If no bias is present, replace the High Voltage Power Supply. If the problem still exists, replace the black developer module.							
3. BACKGROUND (COLOR).	1. Developer Failure.	1. Replace the Color Developer Module.							
	2. No Grid Low signal.	2. Refer to BSD 9.1 and check the Grid Bias (Low) signal CN106-8 for a short to ground. If OK, replace the color developer housing.							
	3. Temperature/RH Sensor failure.	<p>3. If the readings on the diagnostic sheet are out of range (RH=0 or RH > 100, or Temp=0), refer to the chart below:</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: center;">Diag. Sheet</th> <th style="text-align: center;">Refer to BSD 9.19 and check:</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">RH=0</td> <td>CN105-1, Humidity Sense, for a short to ground.</td> </tr> <tr> <td style="text-align: center;">RH > 100</td> <td>CN105-1, Humidity Sense, for an open. CN105-2, Humidity Sense, GND for an open.</td> </tr> <tr> <td style="text-align: center;">Temp=0</td> <td>CN105-5, Temp. Sense, for an open or short to ground.</td> </tr> </tbody> </table> <p>If the wiring checks OK, replace the Temperature/Humidity Sensor.</p>	Diag. Sheet	Refer to BSD 9.19 and check:	RH=0	CN105-1, Humidity Sense, for a short to ground.	RH > 100	CN105-1, Humidity Sense, for an open. CN105-2, Humidity Sense, GND for an open.	Temp=0
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Temp=0	CN105-5, Temp. Sense, for an open or short to ground.								

Defect Name / Description	Possible Causes	Corrective Action
4. BACKGROUND (CYAN).	1. Overtoneing	1. Refer to ADJ 9.1 step 11 and complete the procedure if required.
	2. No Cyan Bias or constant Cyan Toner Dispensing.	2. Refer to BSD 9.1 and check the Cyan Developer Bias voltage. If no voltage is present replace the High Voltage Power Supply. If the voltage is OK check the Cyan Developer Bias lead CN803-1 for an open. If the wiring is OK, refer to BSD 9.10 and check the Cyan Toner Solenoid CN115-12 for a short to ground. If no short is present, replace the color developer module.
5. BACKGROUND (MAGENTA).	1. Overtoneing	1. Refer to ADJ 9.1 step 11 and complete the procedure if required.
	2. No Magenta bias or constant Magenta Toner Dispensing.	2. Refer to BSD 9.1 and check the Magenta Developer Bias voltage. If no voltage is present replace the High Voltage Power Supply. If the voltage is OK check the Magenta Developer Bias lead CN803-3 for an open. If the wiring is OK, refer to BSD 9.10 and check the Magenta Toner Solenoid CN115-14 for a short to ground. If no short is present, replace the color developer module.
6. BACKGROUND (YELLOW).	1. Overtoneing	1. Refer to ADJ 9.1 step 11 and complete the procedure if required.
	2. No Yellow bias or constant Yellow Toner Dispensing.	2. Refer to BSD 9.1 and check the Yellow Developer Bias voltage. If no voltage is present replace the High Voltage Power Supply. If the voltage is OK check the Yellow Developer Bias lead CN803-5 for an open. If the wiring is OK refer to BSD 9.10 and check the Yellow Toner Solenoid CN115-16 for a short to ground. If no short is present, replace the color developer module.

Defect Name / Description	Possible Causes	Corrective Action
7. BLACK PRINT (NO IMAGE IS PRESENT, THE PAGE IS BLACK).	1. Drum Module not seated.	1. Reseat the Drum Module.
	2. Print Drum module arcing. The print may be a combination of all colors.	2. Listen for arcing and watch message display for scrambled characters. If present replace the Print Drum module.
	3. ESS holding laser on.	3. Slide ESS out of printer. Run IOT Test pattern. If OK, replace ESS. If prints are still black, reinstall ESS and continue with this procedure.
	4. No power to Charge Scorotron.	4. Check the wiring between the High voltage Power Supply and the Charge Spring Clip to ensure a good connection.
	5. No Charge on signal.	5. Refer to Section 7, BSD 9.1 and check the Charge on Signal (CN106-2) for an open. If signal does not go low during print, replace the PCU PWB.
	6. Broken Charge Scorotron.	6. Replace the Print Drum Module.
	7. High voltage Power Supply defective.	7. Replace the High Voltage Power Supply.
	8. Constant Black Data being sent to ROS.	8. Refer to Section 7, BSD 6 and check the VIDEO DATA line (CN113-8) for a short to ground.
	9. Constant Black Data being sent to PCU PWB.	9. Refer to Section 7, BSD 6 and check the DATA line (CN104-11) for a short to ground.
	10. PCU PWB or ESS PWB defective.	10. Replace PCU PWB. If problem still exists, replace the ESS PWB.
	11. Laser beam is always on.	11. Replace the ROS.

Defect Name / Description	Possible Causes	Corrective Action
8. BLANK PRINT (NO IMAGE IS PRESENT, THE ENTIRE PRINT IS WHITE).	1. No Developer Drive	1. Developer Drive Belts broken. Repair or replace. Drive System not camming in when the ROS is closed. Check for binding or mechanical interference.
	2. ESS or ESS components not seated.	2. Slide ESS out of printer. Run IOT Test pattern. If OK, reseal all plug in components on the ESS reinstall ESS and recheck. If prints are blank with ESS removed, continue with this procedure.
	3. Constant Magnetic Roll cleaning.	3. Refer to Section 7, BSD 9.6 and check the Magnetic Roll Cleaner Solenoid for an open. If the On signal (CN115-10) does not go low during print, replace the PCU PWB.
	4. No Horizontal Sync from IOT (continuous blank prints when printing).	4. Refer to Section 7, BSD 6 and check the HSYNC signal line (CN104-9) for an open.
	5. No Vertical Sync from IOT (continuous blank prints when printing).	5. Refer to Section 7, BSD 6 and check the VSYNC signal line (CN104-10) for an open.
	6. No Data signals from ESS.	6. Refer to Section 7, BSD 6 and check the DATA signal line (CN104-11) for an open.
	7. PCU PWB defective.	7. Replace PCU PWB.
9. BLANK PRINT (BLACK).	1. No Black Developer Clutch (No Black development).	1. Refer to Section 7, BSD 9.7 and check the Black Developer Clutch for an open. If the ON signal (CN115-2) does not go low during print, replace the PCU PWB.
	2. Constant Black Magnetic Roll cleaning.	2. Cleaning Cam timing incorrect, refer to the Magnetic Roller Cleaning Cams adjustment (ADJ 6.1) and perform the check.

Defect Name / Description	Possible Causes	Corrective Action
10. BLANK PRINT (CYAN).	1. No Cyan Developer Clutch (No Cyan development).	1. Refer to BSD 9.9 and check the Cyan Developer Clutch for an open. If the ON signal (CN115-4) does not go low during print, replace the PCU PWB.
	2. Constant Cyan Magnetic Roll cleaning.	2. Cleaning Cam timing incorrect, refer to the Magnetic Roller Cleaning Cams adjustment (ADJ 6.1) and perform the check.
11. BLANK PRINT (MAGENTA).	1. No Magenta Developer Clutch (No Magenta development).	1. Refer to BSD 9.9 and check the Magenta Developer Clutch for an open. If the ON signal (CN115-6) does not go low during print, replace the PCU PWB.
	2. Constant Magenta Magnetic Roll cleaning.	2. Cleaning Cam timing incorrect, refer to the Magnetic Roller Cleaning Cams adjustment (ADJ 6.1) and perform the check.
12. BLANK PRINT (YELLOW).	1. No Yellow Developer Clutch (No Yellow development).	1. Refer to BSD 9.9 and check the Yellow Developer Clutch for an open. If the ON signal (CN115-8) does not go low during print, replace the PCU PWB.
	2. Constant Yellow Magnetic Roll cleaning.	2. Cleaning Cam timing incorrect, refer to the Magnetic Roller Cleaning Cams adjustment (ADJ 6.1) and perform the check.
13. COLOR HALO Most Often A Yellow Halo	1. Very Dry Paper.	1. Replace paper.
	2. New Developer Module just installed.	2. Perform the Density and Color Balance Adjustment. (ADJ. 3.1). Run 300 prints to "break in" the new developer housing. Enter Special diagnostics, scroll to ID Level, set offending color to 80.

Defect Name / Description	Possible Causes	Corrective Action							
14. DARK DENSITY (ALL COLORS).	1. Color Balance out of adjustment.	1. Perform the Density and Color Balance Adjustment. (ADJ. 3.1).							
	2. Developer near end of life.	2. Check % remaining (from the Menus). Replace as required.							
	3. Print Drum Module failure.	3. Replace the Print Drum Module.							
	4. Print Drum Arcing.	4. Refer to OF8 Arcing RAP in Section 2.							
	5. New developer assembly did not initialize.	5. Run a Diagnostic Sheet and check the Toner Concentration Setpoints for newly installed developer assembly. If the Setpoints are at 70 (default), replace the developer assembly.							
	6. No charge.	6. Refer to BSD 9.4 and check the RED leads to the Print Drum Module for an open.							
	7. Temperature/RH Sensor failure.	<p>7. If the readings on the diagnostic sheet are out of range (RH=0 or RH > 100, or Temp=0), refer to the chart below:</p> <table border="1" data-bbox="1379 842 1966 1077"> <thead> <tr> <th data-bbox="1379 842 1487 911">Diag. Sheet</th> <th data-bbox="1487 842 1966 911">Refer to BSD 9.19 and check:</th> </tr> </thead> <tbody> <tr> <td data-bbox="1379 911 1487 954">RH=0</td> <td data-bbox="1487 911 1966 954">CN105-1, Humidity Sense, for a short to ground.</td> </tr> <tr> <td data-bbox="1379 954 1487 1013">RH > 100</td> <td data-bbox="1487 954 1966 1013">CN105-1, Humidity Sense, for an open. CN105-2, Humidity Sense, GND for an open.</td> </tr> <tr> <td data-bbox="1379 1013 1487 1077">Temp=0</td> <td data-bbox="1487 1013 1966 1077">CN105-5, Temp. Sense, for an open or short to ground.</td> </tr> </tbody> </table> <p>If the wiring checks OK, replace the Temperature/Humidity Sensor.</p>	Diag. Sheet	Refer to BSD 9.19 and check:	RH=0	CN105-1, Humidity Sense, for a short to ground.	RH > 100	CN105-1, Humidity Sense, for an open. CN105-2, Humidity Sense, GND for an open.	Temp=0
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Temp=0	CN105-5, Temp. Sense, for an open or short to ground.								

Defect Name / Description	Possible Causes	Corrective Action
15. DARK DENSITY (SINGLE COLOR).	1. Color Balance out of adjustment.	1. Perform the Density and Color Balance Adjustment. (ADJ. 3.1).
	2. Print Drum Module failure.	2. Replace the Print Drum Module.
	3. Developer Module failure.	3. Replace the Developer Module.
	4. No Black toner regulation.	4. Refer to BSD 9.7 and check the Black Toner GND CN107-2 for an open.
16. DARK LINES OR STREAKS, LEAD EDGE TO TRAIL EDGE.	1. Dirty Charge Scorotron.	1. Clean the Charge Scorotron.
	2. Charge Scorotron Cleaner out of position.	2. Position Cleaner to extreme left.
	3. Scratched Print Drum.	3. Replace the Print Drum Module.
	4. Grounding Roller always raised.	4. Check the Grounding Roller for binding. If OK, refer to BSD 8.3 and check the Grounding Roller Solenoid On Signal CN101-6 for a short to ground.
	5. Foreign particles under the Print Drum Cleaning Blade.	5. Remove the Cleaning Blade (3 screws) and clean the blade. Reinstall and make several prints to verify cleaning. If problem still exists, replace the Print Drum Module.
	6. Low Oil or Fuser Wiper Roll failure.	6. If Oil is low, refer to the W5 RAP and check the operation of the Oil Sensor. Add Oil or replace the Fuser Wiper Roll.
	7. Developer being pulled from housing by high charge.	7. Charge Scorotron contaminated by fuser oil. Check fuser for leaks. Replace Print Drum Module. Replace Fuser if required.
	8. Stripper Finger marks.	8. If marks line up with Stripper fingers, clean Stripper Fingers, replace paper.
	9. Oil Leakage.	9. Replace all oil contaminated parts. Clean as required, pay special attention to the Transfer Drum Cleaning Brush. Oil on the brush will re-contaminate the Print Drum.

Defect Name / Description	Possible Causes	Corrective Action
17. DARK SPOTS.	1. Print Drum Module defective.	1. Replace the Print Drum Module.
	2. Toner falling from the developer housings.	2. Clean Toner from the developer housings.
	3. Poor developer mixing.	3. Replace the Developer Module.
	4. Oil Spots on Print Drum.	4. Check for Oil leaks. Replace Print Drum Module.
18. DELETIONS (COMET). Small white deletions app. 1mm wide X 1-5mm long.	1. High Volume operation (more that 500 prints per day).	1. Switch on Cleaning Cycles. Refer to GP 3.4
19. DELETIONS (HOLLOW CHARACTERS).	1. Transfer Drum Nip too large.	1. Perform Transfer Drum Nip Adjustment (ADJ 11.1)
20. DIRT, TONER, OR CONTAMINATION ON THE REVERSE SIDE OF THE PRINT (IT MAY BE REPEATING).	1. Toner in the paper path.	1. Clean the paper path.
	2. Dirty Fuser Pressure Roll, repeats every 3.66 inches.	2. Replace the Fuser Module.
	3. Transfer Drum Cleaning failure.	3. Replace the Transfer Drum Cleaning Blade and Brush.
	4. Dirty Printer (Sump Full).	4. Refer to BSD 9.21 and check the Waste Toner Full signal, CN102-3, for a short to ground.
	5. High volume Printer.	5. Increase the cleaning cycles. Refer to GP 3.4 in Section 6

Defect Name / Description	Possible Causes	Corrective Action
21. FUZZY IMAGE.	1. Bias is incorrect (Trail edge of color is light).	1. Refer to BSD 9.1 and check the Bias control signal, between CN106-6, and CN802-1 for an open.
	2. Developer failure.	2. Replace the Color Developer Module.
	3. ESS Failure.	3. Replace the ESS.
22. LIGHT DENSITY IN A SINGLE COLOR.	1. Color Balance out of adjustment.	1. Perform the Density and Color Balance Adjustment. (ADJ. 3.1).
	2. Developer Module flow blockage.	2. Replace the Developer Module.
	3. Printer not level.	3. Level printer.
	4. Developer Module defective or at end of life.	4. Replace the Developer Module.
	5. No Black Developer Bias (Black only is light).	5. Refer to BSD 9.1 and check the Black Developer Bias lead for a short to ground.
	6. Transfer to Print Drum Nip incorrect.	6. Refer to The Transfer Drum Nip adjustment (ADJ 11.1) and perform the check.
	7. Bias Control Signal (Black only is light)	7. Refer to BSD 9.1 and check the Bias Control Signal CN106-6 for an open or short to ground.
23. LIGHT DENSITY ALL COLORS.	1. Developer seals still in place.	1. Remove shipping material from developer assemblies.
	2. Poor Transfer.	2. Check contact between right transfer drum bearing and Transfer contact on frame. Check Transfer Drum Nip. ADJ 11.
	3. Print Drum Arcing.	3. Refer to OF8 Arcing RAP in Section 2.
	4. Printer not level.	4. Level printer.
	5. Weak Laser Diode output.	5. Replace ROS assembly.

Defect Name / Description	Possible Causes	Corrective Action
24. LIGHT LINES/DELETIONS LEAD TO TRAIL EDGE.	1. Dirty Charge Scorotron.	1. Clean the Charge Scorotron.
	2. Foreign material between ROS and Print Drum (defect is present in all colors).	2. Clean the ROS to Print Drum path using a lint free cloth.
	3. Print Drum scratched.	3. Replace the Print Drum Module.
	4. Transfer Drum to Print Drum Nip to small.	4. Perform the Transfer Drum Nip check (ADJ 11.1).
	5. Foreign material scraping the paper on the Transfer Drum, for example paper from a previous jam.	5. Check for foreign material.
	6. Foreign material in Developer Housing.	6. Replace the Developer Module.
	7. Stripper Finger Marks.	7. If marks line up with Stripper fingers, clean Stripper Fingers, replace paper.
	8. Oil Spill. (Printer tipped or moved)	8. Remove fuser and check for oil leakage. If oil has leaked, check the following areas: <ul style="list-style-type: none"> • Transfer Drum Cleaner • Print Drum • Black Developer Housing • Color Developer Housing • Fuser • Paper Feed Assembly Replace any contaminated components.
25. MISREGISTRATION (BLACK).	1. Fuser Speed incorrect (V66 IOT Firmware).	1. Perform Fuser Speed check. (GP. 3.1)
	2. Transfer Drum to Print Drum Nip to large.	2. Perform the Transfer Drum Nip check (ADJ 11.1).
26. MISREGISTRATION (YELLOW).	1. Fuser Speed incorrect (V66 IOT Firmware).	1. Perform Fuser Speed check. (GP. 3.1)
	2. Transfer Drum to Print Drum Nip to large.	2. Perform the Transfer Drum Nip check (ADJ 11.1).

Defect Name / Description	Possible Causes	Corrective Action
27. MISREGISTRATION (SIDE TO SIDE).	1. Registration adjustment incorrect	1. Perform Margins adjustment. (ADJ. 3.2)
	2. Constant HSYNC from IOT.	2. Refer to BSD 6 and check the HSYNC signal CN104-9 for a short to ground.
28. MISREGISTRATION (LEAD TO TRAIL EDGE).	1. Registration adjustment incorrect.	1. Perform Margins adjustment. (ADJ. 3.2)
	2. Registration clutch always energized.	2. Refer to BSD 8.2 and check the Registration Clutch CN101-4 for a short to ground.
	3. Transfer to Print drum gear mesh incorrect.	3. If prints are OK when using enhanced alignment, refer to Transfer Drum Nip adjustment (ADJ 11.1) and perform the check.
29. MISREGISTRATION HEAVIER STOCK (LEAD TO TRAIL EDGE).	1. Grounding roller not being raised.	1. Refer to BSD 8.3 and check the Grounding Roller Solenoid circuit for an open.
30. MULTISHEET FEED.	1. Paper is less than 20 lb.	1. Use heavier paper from 20 to 24 lb.
	2. Paper not installed correctly or in poor condition.	2. Check the following: <ul style="list-style-type: none"> • Fan the paper. • Change the paper. • Turn the paper over in the cassette. • Snubber alignment.
31. OIL SPOTS. These may appear as background or black spots on the print.	1. Fuser leaks.	1. Check for any spills from bottle replacement. If OK, check for fuser oil leaks. Replace the Fuser if required.

Defect Name / Description	Possible Causes	Corrective Action
32. REPEATING PRINT DEFECTS EVERY 220 MM (8.66").	1. Defective/damaged Print Drum.	1. Clean the Print drum with film remover. Be sure to let the drum dry before rotating it. If the defect persists, replace the Print Drum Module.
33. REPEATING PRINT DEFECTS EVERY 93 MM (3.66").	1. Out of Oil.	1. If Oil is low, refer to the W5 RAP and check the operation of the Oil Sensor. Add Oil. Run 20 blank prints to clean the fuser roll.
	2. Damaged Fuser Roll.	2. Replace the Fuser Module.
34. REPEATING PRINT DEFECTS EVERY 63.5 MM (2.5").	1. Grounding Roller always raised.	1. Check the Grounding Roller for binding. If OK, refer to BSD 8.3 and check the Grounding Roller Solenoid On Signal CN101-6 for a short to ground.
35. PRINT DEFECT 63.5 MM (2.5") FROM LEAD EDGE OF PRINT.	1. Poor Transfer	1. Check the following: <ul style="list-style-type: none"> • Check contact between right transfer drum bearing and Transfer contact on frame. • Check Transfer Drum Nip. ADJ 11.1 in Section 2. • Paper out of specification. Use 20 to 24 lb. paper.

Defect Name / Description	Possible Causes	Corrective Action
36. RESIDUAL IMAGE.	1. Failed Print Drum Cleaning Blade.	1. Remove the Cleaning Blade (3 screws) and clean the blade. Reinstall and make several prints to verify cleaning. If problem still exists, replace the Print Drum Module.
	2. Low Fuser Oil.	2. If Oil is low refer to the W5 RAP and check the operation of the Fuser Oil Sensor. Add Oil. Run 20 blank prints to clean the fuser roll.
37. SMEARS (BLACK).	1. Fuser Speed incorrect (V66 IOT Firmware).	1. Perform Fuser Speed check. (GP. 3.1)
38. SMEARS (YELLOW).	1. Fuser Speed incorrect (V66 IOT Firmware).	1. Perform Fuser Speed check. (GP. 3.1)
39. SMEARS SIDE TO SIDE ON PORTRAIT PRINT.	1. Light shocked Print Drum	1. Dark rest the Print Drum. Replace the Print Drum
	2. Main drive belt slipping.	2. Replace the main drive belt.
40. SMEARS RANDOM. (BLACK PRINTS OK).	1. Image being disturbed during transfer.	1. Foreign material in Transfer Drum Cleaning Brush or in Transfer Drum Lower Frame.

Defect Name / Description	Possible Causes	Corrective Action
41. TRANSPARENCY PROBLEMS.	1. Jamming, mottle type deletions, Oil offsetting.	1. Adjust Transparency Mode (GP 3.3)
	2. Hollow characters.	2. Try Printing on other side of Transparency. Adjust Transfer Drum Nip (ADJ 11.1) Try different transparency material.
	3. Low density/Deletions.	3. Adjust Transfer Drum Nip (ADJ 11.1)
	4. Oily Transparencies	4. Try (GP 3.3). Interleaf transparencies and paper after printing. Paper will absorb the oil.
42. WRINKLED PAPER.	1. Paper is less than 16 lb.	1. Use heavier paper from 20 to 24 lb.
	2. Feed rolls/drive rolls dirty.	2. Clean the feed rolls and drive rolls.
	3. Paper not installed correctly or in poor condition.	3. Check the following <ul style="list-style-type: none"> • Fan the paper. • Change the paper. • Turn the paper over in the cassette.
	4. Transfer Drum to Print Drum nip incorrect (uneven side-to-side).	4. Perform the Transfer Drum Nip adjustment (ADJ 11.1).
	5. Paper feed problem (wrinkle occurs before transfer, observe print on transfer drum).	5. Check the following: Replace paper feed assembly if required: <ul style="list-style-type: none"> • Tabs broke on large springs loading the lower registration roller. • Defective lower registration roller.
	6. Fuser Module failure (wrinkle occurs after transfer, observe print on transfer drum).	6. Replace Fuser Module.
	7. Exit roller skewed. (wrinkle occurs after fusing).	7. Check for broken or missing bearings. Replace output shaft if required.

Defect Name / Description	Possible Causes	Corrective Action									
43. WRONG COLORS (ON ESS TEST PATTERNS).	1. Color Balance out of adjustment.	1. Perform the Density and Color Balance Adjustment. (ADJ. 3.1).									
	2. Developer Contamination.	2. Replace the Developer Module.									
	3. One of the Magnetic Roll Clutches is always energized.	3. Observe the colors on Test Pattern A. If only one basic color (K, C, M, Y) is correct, that clutch may always be energized. Refer to the table below to troubleshoot. <table border="1" data-bbox="1384 488 1962 896"> <thead> <tr> <th data-bbox="1384 488 1491 547">Correct Color</th> <th data-bbox="1491 488 1962 547">Refer to BSD and check:</th> </tr> </thead> <tbody> <tr> <td data-bbox="1384 547 1491 628">Black</td> <td data-bbox="1491 547 1962 628">BSD 9.7 CN115-2, Black Magnetic Clutch on, for a short to ground. BSD 9.1 CN106-13, K Bias On, for a short to ground.</td> </tr> <tr> <td data-bbox="1384 628 1491 710">Cyan</td> <td data-bbox="1491 628 1962 710">BSD 9.9 CN115-4, Cyan Magnetic Clutch on, for a short to ground. BSD 9.1 CN106-12, C Bias On, for a short to ground.</td> </tr> <tr> <td data-bbox="1384 710 1491 815">Magenta</td> <td data-bbox="1491 710 1962 815">BSD 9.9 CN115-6, Magenta Magnetic Clutch on, for a short to ground. BSD 9.1 CN106-11, M Bias On, for a short to ground.</td> </tr> <tr> <td data-bbox="1384 815 1491 896">Yellow</td> <td data-bbox="1491 815 1962 896">BSD 9.9 CN115-8, Yellow Magnetic Clutch on, for a short to ground. BSD 9.1 CN106-10, Y Bias On, for a short to ground.</td> </tr> </tbody> </table>	Correct Color	Refer to BSD and check:	Black	BSD 9.7 CN115-2, Black Magnetic Clutch on, for a short to ground. BSD 9.1 CN106-13, K Bias On, for a short to ground.	Cyan	BSD 9.9 CN115-4, Cyan Magnetic Clutch on, for a short to ground. BSD 9.1 CN106-12, C Bias On, for a short to ground.	Magenta	BSD 9.9 CN115-6, Magenta Magnetic Clutch on, for a short to ground. BSD 9.1 CN106-11, M Bias On, for a short to ground.	Yellow
Correct Color	Refer to BSD and check:										
Black	BSD 9.7 CN115-2, Black Magnetic Clutch on, for a short to ground. BSD 9.1 CN106-13, K Bias On, for a short to ground.										
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Yellow	BSD 9.9 CN115-8, Yellow Magnetic Clutch on, for a short to ground. BSD 9.1 CN106-10, Y Bias On, for a short to ground.										

TEST PATTERNS

This section contains descriptions of the ESS and IOT generated test patterns.

ESS GENERATED TEST PATTERNS.

The ESS contains several internally generated test patterns to assist in diagnosing image quality problems. These test patterns are accessed using the Off Line Diagnostics Menu. A description of the internal test patterns is provided below.

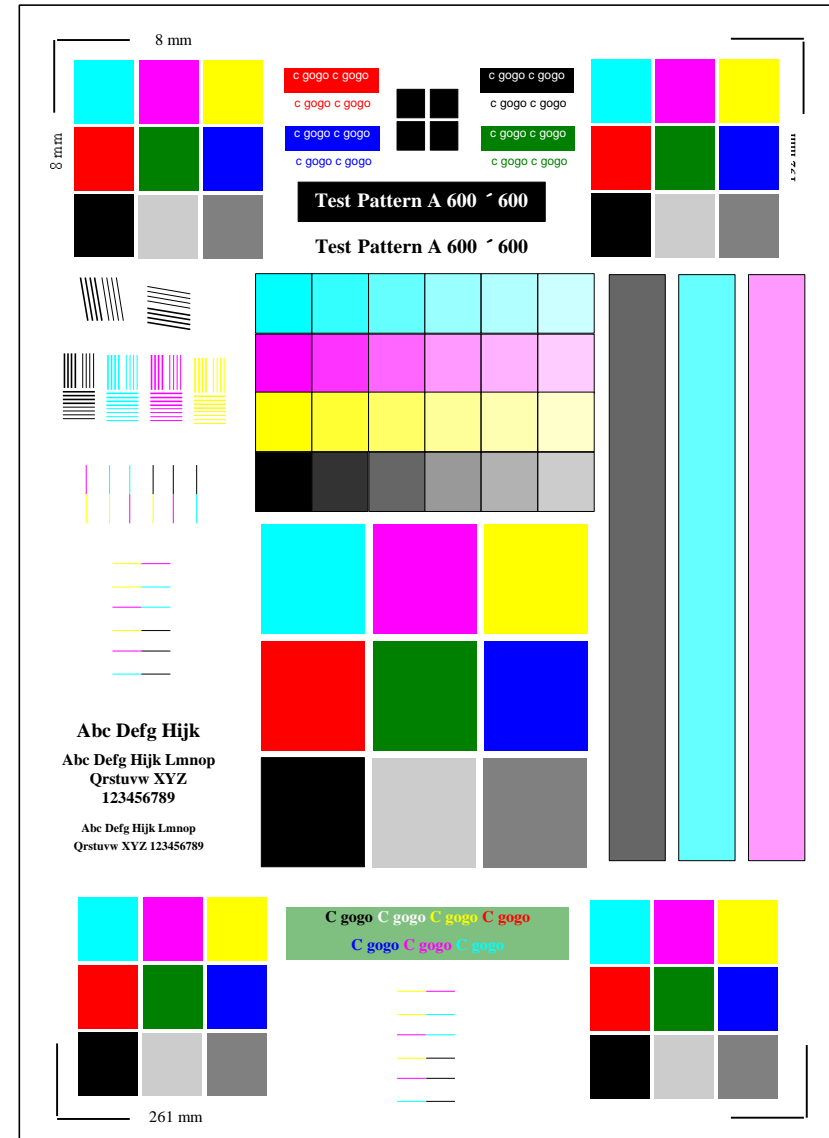
PQ SET

The Print Quality Set (PQ Set) consists of three test patterns and are printed in sequence. They are:

- Test Pattern A
- The Density and Color Balance Test Pattern
- Diagnostic Test Pattern.

Test Pattern A.

This pattern produces an image of varying densities and colors, and assists the user in identifying a variety of image quality defects, including; mottle, streaks, density problems, deletions, and banding. These types of defects are referred to as cosmetic defects.



NOTES:

Density and Color Balance Test Pattern.

This test pattern is used to set the density and to determine if the printer color is balanced properly. It will allow the customer to judge the color balance, and correct the color balance if necessary. Refer to ADJ. 3.1 Density and Color Balance Procedure in Section 4 for additional information.

*NOTE: It is often difficult to see changes in the color balance. You can check the change by running a printer diagnostic sheet before and after the adjustment. Changes will show in the values under **Density Rate Setpoints and Developer Bias**. The NC60 includes these values on the Density and Color Balance Test Pattern.*

On the NC60 only, you must disconnect all input ports from the ESS before performing this adjustment.

**Density And Color Balance Adjustment
Test Page**

1. Adjust Color Density (30% Halftone): **CYAN + MAGENTA + YELLOW**

2. Adjust Color Density (30% Halftone): **BLACK / GRAYSCALE**

3. Adjust Color Balance: Choose The circle Which Best Matches The Gray Reference

Xerox Corporation, 1996 ver 1.2

Diagnostic Test Pattern. (C55/C55mp)

This test pattern can be used by the Help Center to determine the status of some of the machine parameters.

Process Control Status:

If Black, Cyan, Magenta, or Yellow, indicate:

Under Limit Error - Process controls thinks the prints are too light even at the highest bias.

Over Limit Error - Process controls thinks the prints are too dark even at the lowest bias.

Irregular Error - The Gamma Sensor did not see the expected difference between the 3 patches during setup.

Possible causes for **Under Limit** and **Irregular** errors tend to be the same:

- Transfer Nip too small, or poor transfer in general.
- Toner concentration in the developer assembly is too low. Arcing may be causing excessive toner consumption.
- Very low Relative Humidity. Magenta is especially sensitive to this problem. The error occurs if Relative Humidity is less than 10 counts (General information on Diagnostic sheet).
- Developer assembly problem.
- High Voltage Power supply problem.

Possible causes for **Over Limit** errors:

- Very high Relative Humidity. The error occurs if Relative Humidity is greater than 35 counts (General information on Diagnostic sheet).
- Dirty white patch on transfer drum.

The toner concentration in the developer assembly is too high.

Calibration Errors occur when reading the white patch, and the difference between full Gamma voltage and half Gamma voltage is not what was expected. Suspect a dirty white patch or bad Gamma Sensor.

Density Rate Setpoints:

The default is 90, If the Density and Color Balance has been adjusted, these setpoints will change. The range is between 80 and 100. If the Density and Color Balance tries to exceed a limit, the process control will indicate an over or under error. One count is approximately 10 Volts of developer bias

Toner Concentration:

Setpoint - The default is 70. When a new developer assembly is installed, the toner concentration sensor "reads" the new housing and the setpoints are entered in NVM. These setpoints are critical for proper copy quality and must be re-entered if the PCU PWB is replaced or the NVM is initialized. If the NVM is accidentally initialized, the setpoints can be obtained from the Diagnostic sheet and re-entered into NVM.

Control Point - This is the value that the toner concentration sensor in the developer assembly tries to maintain. The control point uses the setpoint as a starting point and then varies depending on the temperature and relative humidity. In high humidity conditions, the value is increased and in low humidity conditions, the value is decreased.

The Black value varies between -20 to +27.

The Color value varies between -28 to +22

Value - The values are measured by the toner concentration sensors during the print cycle and determine when toner needs to be added to the developer assembly. The value usually does not equal the control point exactly, but is generally within 5 counts.

Process Voltage:

Transfer Bias - This is the voltage applied to the transfer drum.

The Paper default is 1305V and varies depending on the temperature and relative humidity. In high humidity conditions, the value is decreased and in low humidity conditions, the value is increased.

The Paper bias varies between 1200-1400V.

The Transparency default is 2000V and varies depending on the temperature and relative humidity. The voltage varies for each of the 4 colors when running transparencies.

Black default is 2000V

Cyan default is 2200V

Magenta default is 1400

Yellow default is 2600

As the humidity changes the voltage is also changed to compensate.

Developer Bias - The default bias is 400V. The four developer bias voltages are set during the Process Control cycle at power on. The voltage range is from -250 to -550 volts. In general, the higher the bias the darker the print. If the values get too high or too low, the charge voltage may change to compensate. The Magenta voltage tends to be higher. These values will also change when the color balance procedure is performed.

General Information:

Software Version: X.X.X - Current ESS Software version.
Software Part Number: XXXXXXXXX ESS PWB part number.
Engine Software Version: XX - current IOT Software version.
Serial Number XXX-XXXXXX - Printer Serial Number.
Total RAM Installed : 24 MB - Total Ram installed in Printer.
Base: 8 MB - Soldered on the ESS PWB always 8M.
J8/J9 16 MB - This is the DRAM in the upper two slots. They must be matched and must be the larger of the SIMM's
J10/J11 0 MB - This is the DRAM in the lower two slots.

Binary/Contone Lossy Counters - The C55 printer uses compression and decompression to save memory. However, if the job is very complex, lossy compression may be used. The printer will still try to print the job however data may be lost. If this occurs, the Lossy Counters will increment. Add more memory to fix this problem.

Humidity/Temperature counts - These readings are used to adjust the copy quality to the environment. If these readings are extreme (0 or 255) the Temperature/Humidity sensor is not working properly.

Fuser Temp: - This count represents fuser temperature. The following values are normal:

- Transparencies 160
- Warm-up 150
- Paper 140

Consumables Usage - These readings track the prints and images used by the various consumables. These readings will be reset to zero when a new consumable is installed.

Adjustments - These readings are stored in the ESS. If the ESS is replaced, these values will need to be re-entered.

Xerox
DocuPrint C55mp
Color Laser Printer

Printer Diagnostics

<p>Process Control Status Black: Okay Cyan: Okay Magenta: Okay Yellow: Okay Calibration: Okay</p> <p>Density Rate Setpoints Black: 90 Cyan: 90 Magenta: 90 Yellow: 90</p> <p>Toner Concentration Setpoint Black: 91 Cyan: 94 Magenta: 102 Yellow: 96 Control Point Black: 89 Cyan: 94 Magenta: 100 Yellow: 88 Value Black: 92 Cyan: 94 Magenta: 102 Yellow: 84</p> <p>Process Voltage Transfer Bias Paper 1400 Volts OHP 2200 Volts Developer Bias Black: 357 Volts Cyan: 364 Volts Magenta: 421 Volts Yellow: 374 Volts</p>	<p>General Information Software Version: x.x.x Software Part Number:xxxxxxx Engine software Version: xx Serial Number: xxx xxx xxx Total Ram Installed: 24 Base: 8 Mb J8/J9: 16 Mb J10/J11: 0 Mb Total Pages Binary Lossy Counter: 0 Prints Contone Lossy Counter: 0 Prints Relative Humidity: 20 Counts Temperature: 107° Counts Fuser Temperature: 157° Counts</p> <p>Consumable Usage Status Fuser: xxx Prints Print Drum: 939 Images Fuser Oil: Okay Black Developer: xxx Images Color Developers Cyan: xx Images Magenta: xx Images Yellow: xx Images</p> <p>Print Counts Total Pages: xxxxx Black: xxxxx Cyan: xxxxx Magenta: xxxxx Yellow: xxxxx</p> <p>Adjustments Top Margin: +0mm Left Margin: +0mm Cleaning Cycle: Never TC Patch Control: Yes</p>
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Visit our web site at <http://xerox.networkprinters.com/products/c55>

Diagnostic Sheet [NC60]

This test pattern can be used by the Help Center to determine the status of some of the machine parameters.

General Information:

Serial Number xxx-xxxxxxx - Printer Serial Number.

Software Version: - Current ESS Software version.

Engine Software Version: - current IOT Software version.

Total Memory Installed : - Total Ram installed in Printer. Max used 128 MB

Binary/Contone Lossy Counters - The NC60 printer uses compression and decompression to save memory. However, if the job is very complex, lossy compression may be used. The printer will still try to print the job however data may be lost. If this occurs, the Lossy Counters will increment. Add more memory to fix this problem.

Humidity/Temperature counts - These readings are used to adjust the copy quality to the environment. If these readings are extreme (0 or 255) the Temperature/Humidity sensor is not working properly.

Fuser Temp: - This count represents fuser temperature. The following values are normal:

Transparencies	160
Warm-up	150
Paper	140

Print Counts

The number of Total, Black, Cyan, Magenta, and Yellow prints made on the NC60.

Consumables Usage Status

These readings track the prints and images used by the various consumables. These readings will be reset to zero when a new consumable is installed.

Adjustments

These readings are stored in the ESS. If the ESS is replaced, these values will need to be re-entered.

Process Control Status:

If Black, Cyan, Magenta, or Yellow, indicate:

Under Limit Error - Process controls thinks the prints are too light even at the highest bias.

Over Limit Error - Process controls thinks the prints are too dark even at the lowest bias.

Irregular Error - The Gamma Sensor did not see the expected difference between the 3 patches during setup.

Possible causes for **Under Limit** and **Irregular** errors tend to be the same:

- Transfer Nip too small, or poor transfer in general.
- Toner concentration in the developer assembly is too low. Arcing may be causing excessive toner consumption.
- Very low Relative Humidity. Magenta is especially sensitive to this problem. The error occurs if Relative Humidity is less than 10 counts (General information on Diagnostic sheet).
- Developer assembly problem.
- High Voltage Power supply problem.

Possible causes for **Over Limit** errors:

- Very high Relative Humidity. The error occurs if Relative Humidity is greater than 35 counts (General information on Diagnostic sheet).
- Dirty white patch on transfer drum.

The toner concentration in the developer assembly is too high.

Calibration Errors occur when reading the white patch, and the difference between full Gamma voltage and half Gamma voltage is not what was expected. Suspect a dirty white patch or bad Gamma Sensor.

Density Rate Setpoints:

The default is 90, If the Density and Color Balance has been adjusted, these setpoints will change. The range is between 80 and 100. If the Density and Color Balance tries to exceed a limit, the process control will indicate an over or under error. One count is approximately 10 Volts of developer bias

Gamma Set Points

These are internal setpoints and are the same for all printers.

Toner Concentration:

Setpoint - The default is 70. When a new developer assembly is installed, the toner concentration sensor "reads" the new housing and the setpoints are entered in NVM. These setpoints are critical for proper copy quality and must be re-entered if the PCU PWB is replaced or the NVM is initialized. If the NVM is accidentally initialized, the setpoints can be obtained from the Diagnostic sheet and re-entered into NVM.

Control Point - This is the value that the toner concentration sensor in the developer assembly tries to maintain. The control point uses the setpoint as a starting point and then varies depending on the temperature and relative humidity. In high humidity conditions, the value is increased and in low humidity conditions, the value is decreased.

The Black value varies between -20 to +27.

The Color value varies between -28 to +22

Value - The values are measured by the toner concentration sensors during the print cycle and determine when toner needs to be added to the developer assembly. The value usually does not equal the control point exactly, but is generally within 5 counts.

Delta - this is the difference between the Control Point and the Value measured. The delta will vary but rarely exceeds 20.

Process Voltage

Transfer Bias - This is the voltage applied to the Transfer Drum.

The Paper default is 1305V and varies depending on the temperature and relative humidity. In high humidity conditions, the value is decreased and in low humidity conditions, the value is increased.

The Paper bias varies between 1000-1200V.

The Transparency default is 2000V and varies depending on the temperature and relative humidity. The voltage varies for each of the 4 colors when running transparencies.

Black default is 2000V

Cyan default is 2200V

Magenta default is 1400

Yellow default is 2600

As the humidity changes the voltage is also changed to compensate.

Developer Bias - The default bias is 400V. The four developer bias voltages are set during the Process Control cycle at power on. The voltage range is from -250 to -550 volts. In general, the higher the bias the darker the print. If the values get too high or too low, the charge voltage may change to compensate. The Magenta voltage tends to be higher. These values will also change when the color balance procedure is performed.

Xerox DocuPrint NC60 Color Laser Printer Diagnostic Sheet



General Information

Serial Number: xxx-xxxxx
 Software Version: 1.80-39 I NL.ROM
 Engine Software Version: 94
 Total System Memory: 64
 Base: 32 MB
 J3: 32MB
 J4: 0 MB
 J5: 0 MB
 J6: 0 MB
 Binary Lossy Counter: 0
 Contone Lossy Counter: 0
 Relative Humidity: 20
 Temperature: 107
 Fuser Temperature: 157

Print Counts

Total: xxxxx
 Black: xxxxx
 Cyan: xxxxx
 Magenta: xxxxx
 Yellow: xxxxx

Consumable Usage Status

Fuser: xxx
 Print Drum: xxx
 Fuser Oil: Okay
 Black Developer: xxx
 Color Developers
 Cyan: xx
 Magenta: xx
 Yellow: xx

Adjustments

Top Margin: 0.0
 Left Margin: 0.0
 Cleaning Cycle: Never
 TC Patch Control: Off
 Fast Black: On
 Extra Toner: On
 Cyclic toneup: On
 OHP Mode: None

Process Control Status

Black: OK
 Cyan: OK
 Magenta: OK
 Yellow: OK
 Calibration: OK

Density Rate Set Points

Black: 90
 Cyan: 90
 Magenta: 90
 Yellow: 90
 Color Balance: Default

Gamma Set Points

Black: 41
 Cyan: 61
 Magenta: 64
 Yellow: 62

Toner Concentration

Set Point
 Black: 95
 Cyan: 112
 Magenta: 110
 Yellow: 102
 Control Point
 Black: 103
 Cyan: 112
 Magenta: 103
 Yellow: 102
 Value
 Black: 103
 Cyan: 105
 Magenta: 92
 Yellow: 103
 Delta
 Black: 0
 Cyan: 7
 Magenta: 11
 Yellow: -1

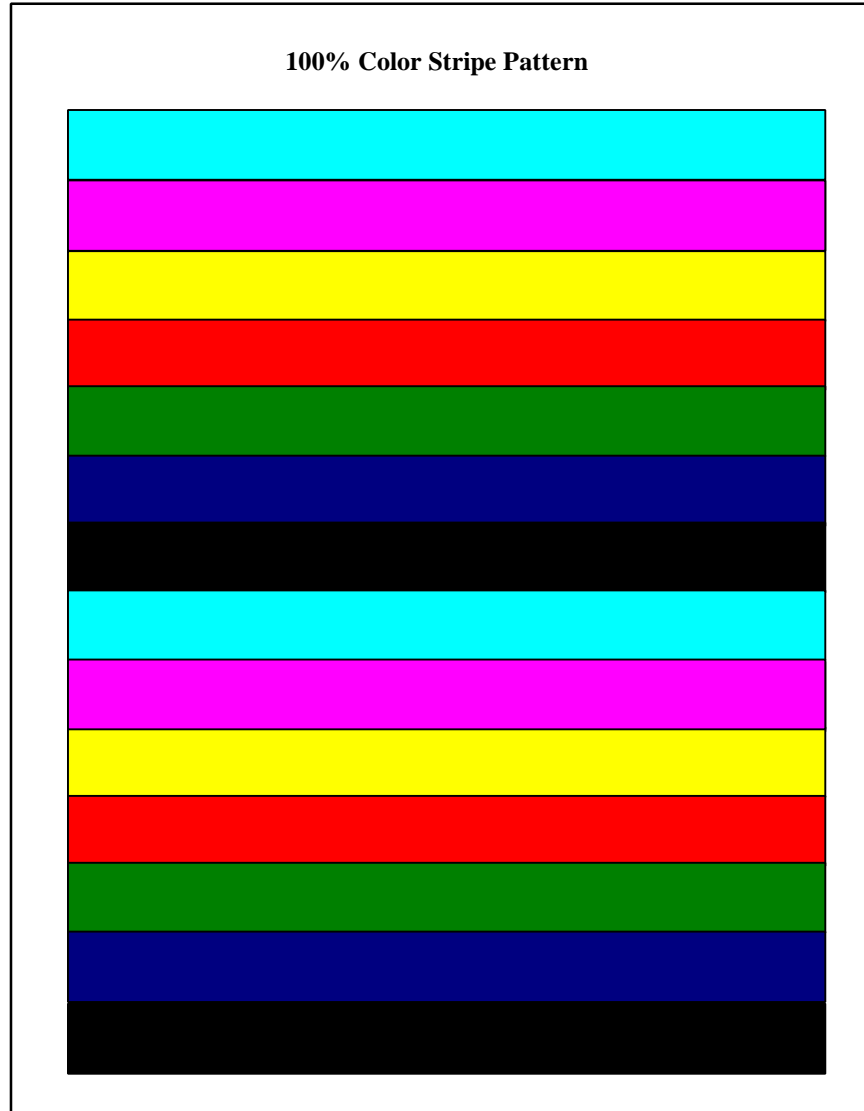
Adjustments

Transfer Bias
 Paper
 High: 1000 Volts/105 volts
 Normal: 1000 Volts/105 volts
 Low: 1200 Volts/105 volts
 OHP
 High: 2200 Volts/200 volts
 Normal: 2000 Volts/200 volts
 Low: 2200 Volts/105 volts
 Developer Bias
 Black: 265 Volts
 Cyan: 345 Volts
 Magenta: 345 Volts
 Yellow: 341 Volts

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100% Stripe Test Pattern.

This test pattern consists of a series of horizontal stripes. The pattern includes the basic colors (Cyan, Magenta, Yellow, and Black) and the process colors (Red, Blue, and Green). This test pattern is useful to isolate a problem to one of the basic colors.



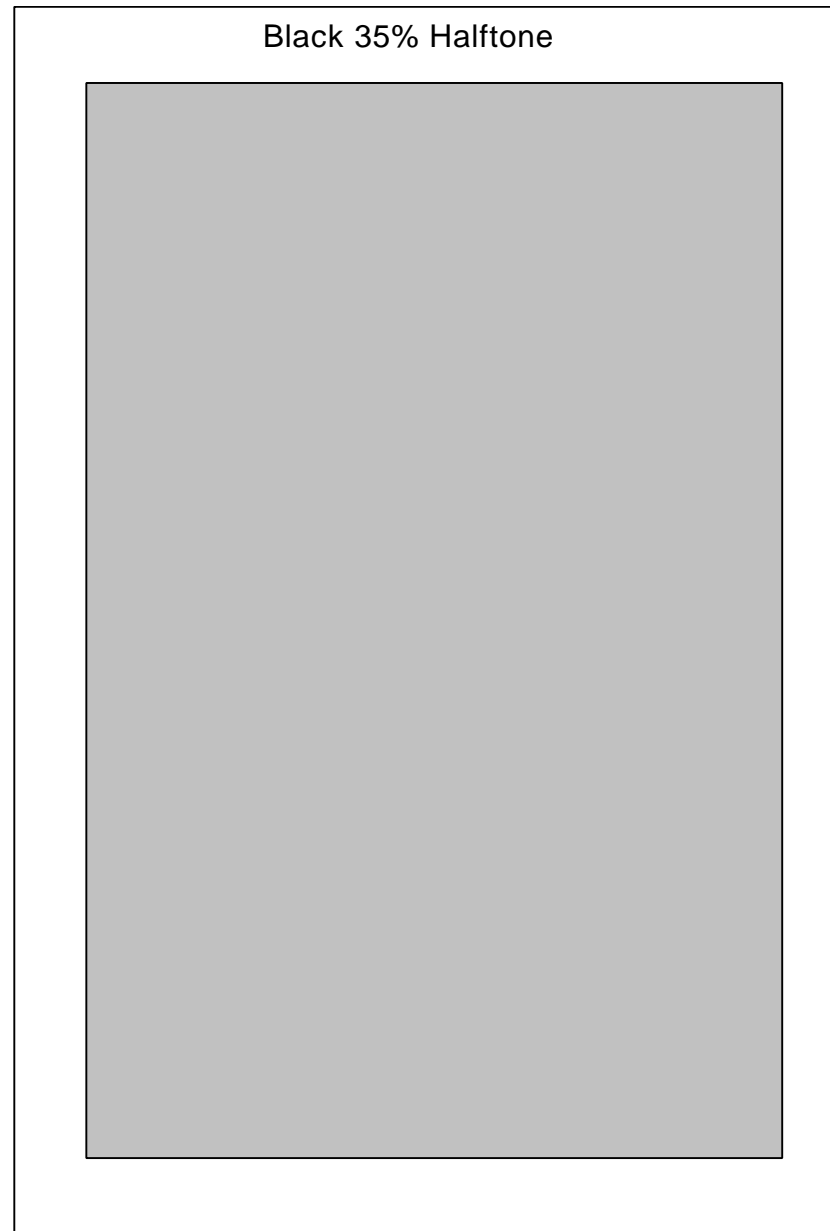
Step Test Pattern

This test pattern consists of a series of steps (changes in image density). The pattern can be run in any of the four basic colors (Cyan, Magenta, Yellow, and Black). This test pattern is useful to isolate a problem to a specific color.



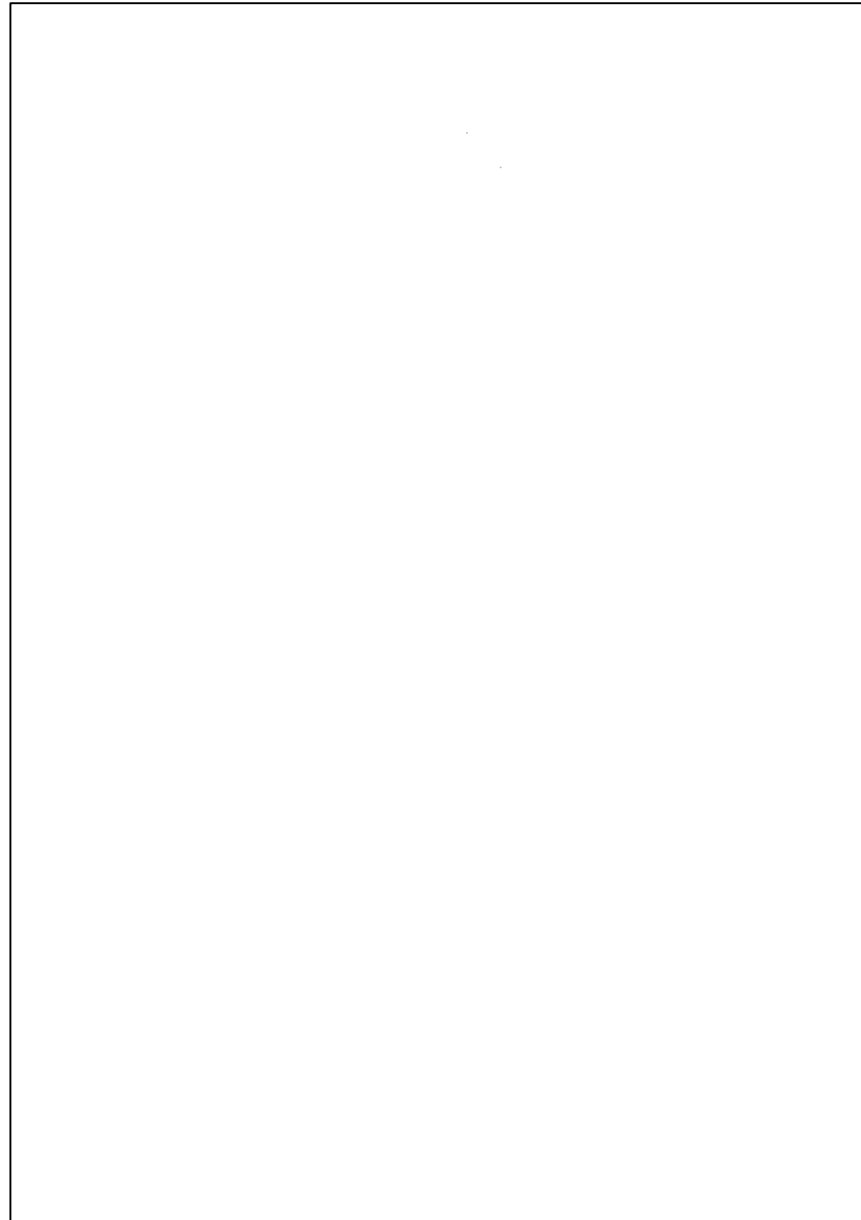
35% Halftone

This test pattern consists of a full page, 35% area coverage, halftone pattern. This pattern are useful in troubleshooting problems in the black developer subsystem.



Blank Print

When selected, each developer housing is switched on a small + indicates which color is running. The remainder of the print is blank. This print can be useful when troubleshooting residual image or offsetting problems.

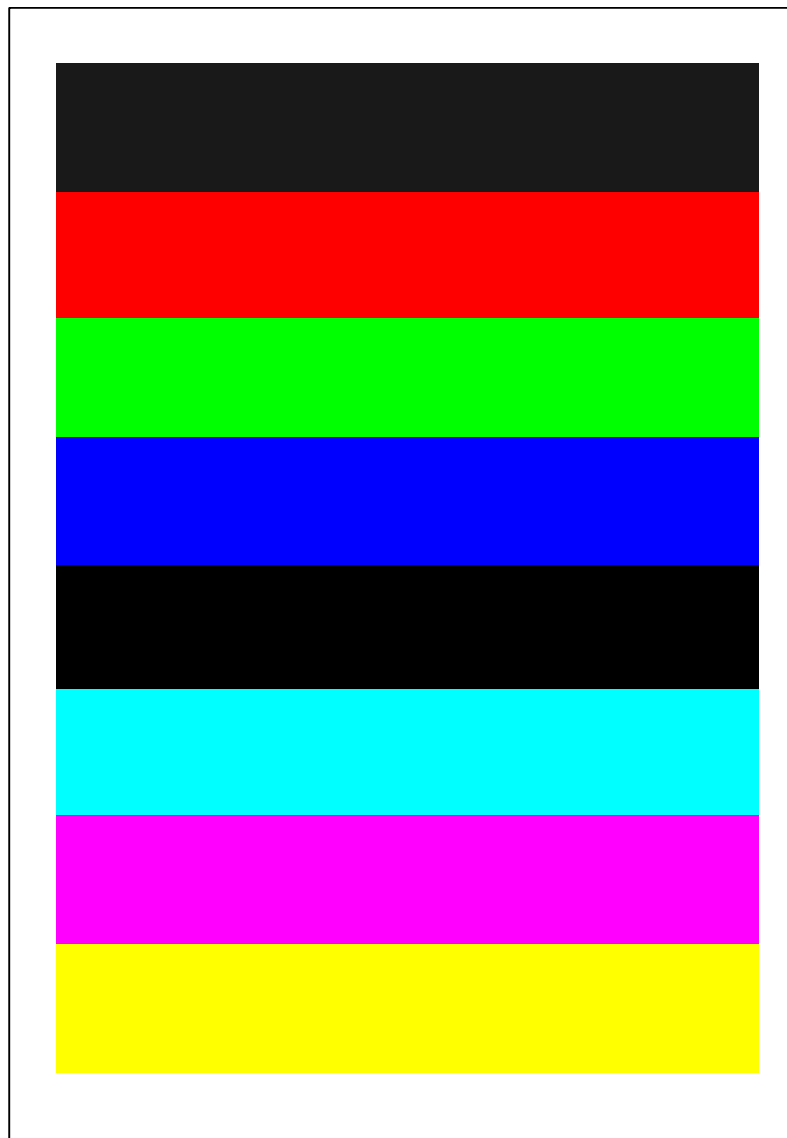


IOT GENERATED TEST PATTERNS.

The IOT contains one internally generated test pattern. It is used to help isolate image quality problems.

If the IOT test pattern prints OK, but test patterns sent from the ESS are bad; the problem must be associated with the ESS.

Anytime the IOT test pattern prints bad the problem is associated with the IOT.



DEFINITIONS

Image Quality Defect Definitions

*NOTE: When referring to a print from this machine, the **front** of the machine is the location where a user of the machine would normally stand to read the control panel. Prints exit from the front to the **rear** and are deposited face down on the top cover. The **lead edge** of the print is the print edge that comes out first.*

Background - Randomly distributed toner particles in the non image areas.

Background can be uniformly distributed over the entire surface of the print or only in localized areas.

The density of the background can vary from barely visible to extremely dark.

Bad text, black, - Text that is fuzzy, broken up, is too wide or “fat”, or contains hollow characters.

Bad text, color, - Colored text that has poor color fidelity or text that is fuzzy, broken up, is too wide or “fat”, or contains hollow characters.

Bands - Bands are wider than lines. See lines, bands, streaks.

Banding - Repeating bands.

Blank print - a print with no image.

Blurred or fuzzy images - Images that are not clear, appear out of focus, or are broken up. The defect can affect the entire print or parts of the print.

Body deletion - a deletion on the print other than on an edge or a corner.

Color incorrect, bad/poor - colors on the print that are not acceptable reproductions of the desired image.

Color Banding - Repeating color bands. See lines, bands, streaks.

Color Contamination - Impure colors, that is, desired colors that contain toner that is not required. For example yellow that may have some black toner mixed in or red that has some cyan toner or other contaminate.

Color misregistration - color images that are not superimposed and should be.

Colored streaks - a colored strip on the print that differs in color or density from the surrounding area. See lines, bands, streaks.

Debris Centered Deletion, - A deletion, typically in a solid area, that contains a dark spot in the center of the deleted area. See deletion.

Deletion - The absence of toner from a part of the desired image. With multicolored images, the result can be white, light or colored spots, lines, streaks bands or untrue colors on the print. If all toner is absent, the defect is classified as a blank print. See Edge Deletion, Trail Edge Deletion, Debris Centered Deletions, Skips, Body Deletions, Washed Out Image.

Density, high or low -

High - The density of the developed image on the print exceeds the MAX sample on the Density SIR.

Low - The density of the developed image on the print exceeds the MIN sample on the Density SIR.

Edge Deletion, - An area of lighter or zero density (a missing image) at the edge of a desired image. See Deletion.

Fusing, marginal - the fused image be can easily wiped off of the print.

Ghosting - The reproduction of a previous image, usually caused by inadequate erasure of the image on the Drum.

NOTE: This defect, ghosting, is one of three similar image quality problems listed below.

Refer to the other defects for additional information.

Ghosting (Drum related).

Offsetting (Fuser related).

Residual Image (Cleaner related).

Graininess - An image defect that causes solid areas to have a sandy looking surface. Graininess is most noticeable in mid density solid areas.

Gray balance incorrect - Grays are produced with a color tint.

Halo, colored (or shadows around text) - A colored ring, shadow, or fringe that appears around text or lines.

Halo, white - A white ring, or fringe that appears around text of lines that are on a colored background.

Hollow Characters - Small circular shaped deletions in image characters. The characters are not completely filled in with toner.

Job to job variability - Image quality variations between prints of the same or similar image from different jobs during the same day. (A job includes all the prints resulting from a single selection of the start print process).

Lead edge to trail edge streaks(s) - A streak is a mark comprised of many small lines of varying length and width giving the appearance of a brush stroke. See lines, bands, streaks.

Light Streaks or Bands - Lower than desired density image areas in the shape of streaks or bands.

Lines, bands, streaks - a strip on the print that differs in color or density from the surrounding area.

A line is typically narrow in width and can be any length.

A band is wider than a line.

A streak is comprised of many small lines of varying length and width giving the appearance of a brush stroke.

Microdarks - Dark spots of any color, easiest seen in non-image areas. The spots are much larger than the toner particle size spots in background.

Misregistered image - See the Image Registration Specification.

Mottle - Small areas of low or light densities within a darker solid area that makes the overall solid area look measles, grainy or sandy. The low density areas are random in shape and size, The size typically is between 0.1MM to 1.0MM. Mottle is most noticeable in high density solid areas.

Offsetting, fuser - The removal of toner from the print by the fuser and the redeposition of that toner on another area of the same print or another print. Removing toner from the image leaves the image rough and without gloss. The redeposited toner may appear as a duplicate image, partially shifted image, or lines and streaks.

NOTE: This defect, fuser offsetting, is one of three similar image quality problems, see list below. Refer to the other defects for additional information.

Ghosting (Drum related).

Offsetting (Fuser related).

Residual Image (Cleaner related).

Oil Marks - Dark round or irregularly shaped marks caused by an oil leak or drips.

Print - A machine produced reproduction of an electronic original store in memory.

Residual Image - A toner image that remains on the Drum after cleaning. The next image is placed on top of the residual image and both images are transferred to the next print.

NOTE: This defect, residual image, is one of three similar image quality problems, see list below. Refer to the other defects for additional information.

Ghosting (Drum related).

Offsetting (Fuser related).

Residual Image (Cleaner related).

Resolution - See the resolution specification.

Skewed image - See the Image Skew Specification.

Skips - An area on the print where the developed image is disturbed before or during fusing. Depending on the type of smear, it may look like a band or streak.

Smear - An area on the print where the developed image is disturbed before or during fusing. Depending on the type of smear, it may look like a band or streak.

Solid Area Deletions - Deletions which occur in a solid area.

Spot - An undesirable circular mark on the print that differs in color or density from the surrounding area.

Spot deletion - A circular shaped deletion. The edges can be fuzzy or sharply defined.

Spot, white/light/colored - A spot that is noticeable in an **image area**. See spot deletions.

Spot, dark/colored - A spot that is noticeable in a **non-image area**.

Streak - An undesirable strip on the print that differs in color or density from the surrounding area. The strip looks like it is comprised of many small lines of varying length and width giving the appearance of a brush stroke. See lines, bands, streaks.

Trail Edge Defects -

Darkened trail edges of solid areas (about the last 4MM of the solid area).

Trail edge deletions (TED's) - The last few MM's of solid areas are lighter in density. See Deletions.

Toner on the backside of the print.

Uneven density - Undesirable density differences or variations from one area of the print to another.

Wavy lines - Solid straight lines (typically in the lead to trail edge direction) that are wavy (or curvy).

Washed out image - an image that is too light or lacks density. It can be the entire image or a part of the image.

Wrinkles or creases - Creasing or folds on the print in the lead to trail edge direction.