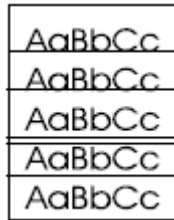


Troubleshooting Image Quality



Letter Blasting

	Analog Copier	Digital Copier/Laser Printer
Cause	<ol style="list-style-type: none"> 1. Inspect Fuser components 2. Worn Transfer Roller 3. Defective Drum 4. Low grade paper 	<ol style="list-style-type: none"> 1. Inspect Fuser components 2. Worn Transfer Roller 3. Defective Drum 4. Low grade paper
Solution	<ol style="list-style-type: none"> 1. Replace Worn Fuser part(s) 2. Change or clean Transfer Roller 3. Replace Drum 4. Try different paper 	<ol style="list-style-type: none"> 1. Replace Worn Fuser part(s) 2. Change or clean Transfer Roller 3. Replace Drum 4. Try different paper



Horizontal Black lines

	Analog Copier	Digital Copier/Laser Printer
Cause	<ol style="list-style-type: none"> 1. If repeated at specific interval, refer to defective ruler or measure distance for part diameter 2. Drum or PCR arching 3. Bias fluctuating 	<ol style="list-style-type: none"> 1. If repeated at specific interval, refer to defective ruler or measure distance for part diameter 2. Laser synchronization problem. 3. Bias fluctuating (dual component)
Solution	<ol style="list-style-type: none"> 1. Replace part matching repetitive distance diameter. 2. Replace drum or PCR clean contacts. 3. Verify for proper bias contact. Replace HVT 	<ol style="list-style-type: none"> 1. Replace part matching repetitive distance diameter. 2. Replace Laser Unit 3. Verify for proper bias contact. Replace HVT



Black page

	Analog Copier	Digital Copier/Laser Printer
Cause	<ol style="list-style-type: none"> 1. No drum ground 2. Blown Exposure Lamp or Fuse 3. Defective lamp regulator brd. 4. Exposure Lamp does not come on 	<ol style="list-style-type: none"> 1. No charge voltage on drum 2. Laser beam continuously on 3. Defective High Voltage 4. Exposure Lamp does not come on
Solution	<ol style="list-style-type: none"> 1. Replace drum/verify drum shaft 2. Replace lamp or fuse 3. Change lamp regulator brd. 4. Replace Lamp/Fuse or Lamp regulator board 	<ol style="list-style-type: none"> 1. Replace PCR/verify contacts 2. Change DC controller or LSU 3. Change High Voltage brd. Replace Lamp/Fuse or Lamp regulator board



Blank page

	Analog Copier	Digital Copier/Laser Printer
Cause	<ol style="list-style-type: none"> 1. Lost charge from PCR/charge corona 2. Defective HVT 3. Poor charge contact 4. No image transfer process 	<ol style="list-style-type: none"> 1. Absent Mag. Roller bias voltage (mono-component engines) 2. No image transfer 3. Poor drum ground 4. Laser unit not illuminating 5. 24V
Solution	<ol style="list-style-type: none"> 1. Replace PCR/charge corona wire 2. Replace High Voltage Brd 3. Verify all contacts related to charge assy. and HVT 4. Replace Transfer roller 	<ol style="list-style-type: none"> 1. Replace Mag. Roller or bias contact 2. Replace Transfer Roller. 3. Change drum 4. Change LSU 5. Replace LVPS



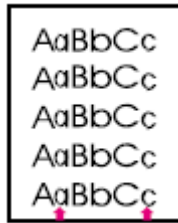
Perpendicular Blank areas

	Analog Copier	Digital Copier/Laser Printer
Cause	<ol style="list-style-type: none"> 1. If repeated at specific interval, refer to defective ruler or measure distance for part diameter 2. Defective charging area on the Drum 3. Discharge Lamps turning on at incorrect times 4. Transfer Roller shorting 	<ol style="list-style-type: none"> 1. Transfer Roller shorting 2. Intermittent Bias lost (monocomponent) 3. If repeated at specific interval, refer to defective ruler or measure distance for part diameter
Solution	<ol style="list-style-type: none"> 1. Replace part matching repetitive distance diameter 2. Replace drum or drum shaft 3. Verify 24V/replace LVPS. Check wiring 4. Replace Transfer Roller/clean contacts 	<ol style="list-style-type: none"> 1. Replace Transfer Roller/clean contacts 2. Verify bias voltage. Adjust mag. Roller contact. 3. Replace part matching repetitive distance diameter



Grape pattern print

	Analog Copier	Digital Copier/Laser Printer
Cause	<ol style="list-style-type: none"> 1. Poor Drum ground 2. Erratic HVT 	<ol style="list-style-type: none"> 1. Poor Drum ground 2. Erratic HVT
Solution	<ol style="list-style-type: none"> 1. Replace drum and/or verify ground contact 2. Replace HVT 	<ol style="list-style-type: none"> 1. Replace drum and/or verify ground contact 2. Replace HVT



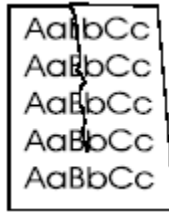
Compressed
print

	Analog Copier	Digital Copier/Laser Printer
Cause	<ol style="list-style-type: none"> 1. Perform midway test and verify image on drum 2. Check feed/aligning roller rotation 3. Drum flange slipping 4. Verify fuser roller drive 	<ol style="list-style-type: none"> 1. Perform midway test and verify image on drum 2. Check feed/aligning roller rotation 3. Drum flange slipping 4. Verify fuser roller drive
Solution	<ol style="list-style-type: none"> 1. If image on drum is compressed, verify optics and scanner for proper function. 2. Correct as required 3. Glue flange or replace drum 4. Correct or replace fuser 	<ol style="list-style-type: none"> 1. If image on drum is compressed, verify optics and scanner for proper function. 2. Correct as required 3. Glue flange or replace drum 4. Correct or replace fuser



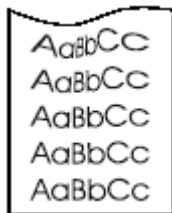
Contamination
on back

	Analog Copier	Digital Copier/Laser Printer
Cause	<ol style="list-style-type: none"> 1. Residual toner remains on drum at end of print cycle 2. Dirty transfer roller or transfer plate 3. Dirty pressure roller 	<ol style="list-style-type: none"> 1. Residual toner remains on drum at end of print cycle 2. Dirty transfer roller or transfer plate 3. Dirty pressure roller
Solution	<ol style="list-style-type: none"> 1. Replace drum/wiper blade discharge lamps 2. replace transfer roller/clean plate 3. Clean/replace pressure roller or oily cleaning roller 	<ol style="list-style-type: none"> 1. Replace drum/wiper blade discharge lamps 2. replace transfer roller/clean plate 3. Clean/replace pressure roller or oily cleaning roller



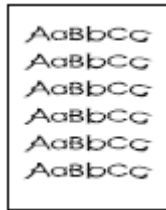
Wrinkled Copy

	Analog Copier	Digital Copier/Laser Printer
Cause	<ol style="list-style-type: none"> 1. Humid Paper 2. Worn or uneven fuser rollers 3. Paper feeds crooked 4. Dirty fuser plate 5. Obstruction in paper path 	<ol style="list-style-type: none"> 1. Humid Paper 2. Worn or uneven fuser rollers 3. Paper feeds crooked 4. Dirty fuser plate 5. Obstruction in paper path
Solution	<ol style="list-style-type: none"> 1. Replace paper with fresh batch 2. Replace or adjust fuser roller pressure 3. Replace roller/adjust paper feed guide 4. Clean fuser plate surface 5. Observe and adjust 	<ol style="list-style-type: none"> 1. Replace paper with fresh batch 2. Replace or adjust fuser roller pressure 3. Replace roller/adjust paper feed guide 4. Clean fuser plate surface 5. Observe and adjust



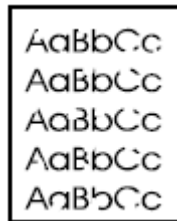
Curl

	Analog Copier	Digital Copier/Laser Printer
Cause	<ol style="list-style-type: none"> 1. Media type does not meet system specifications 2. Incorrect fusing temperature for media 3. Humid paper 4. fusing rollers pressure incorrect 	<ol style="list-style-type: none"> 1. Media type does not meet system specifications 2. Incorrect fusing temperature for media 3. Humid paper 4. fusing rollers pressure incorrect
Solution	<ol style="list-style-type: none"> 1. Refer to manual for media requirements 2. Refer to manual for temperature adjustment 3. Replace paper with fresh batch 4. Reduce fuser roller pressure 	<ol style="list-style-type: none"> 1. Refer to manual for media requirements 2. Refer to manual for temperature adjustment 3. Replace paper with fresh batch 4. Reduce fuser roller pressure



Blurred Print

	Analog Copier	Digital Copier/Laser Printer
Cause	<ol style="list-style-type: none"> 1. Drum/Developer Fatigue 2. Misaligned optic mirror(s) 3. Developer/Drum or scanner drive hindered 4. Moisture on optics or drum 5. Paper path obstructed 	<ol style="list-style-type: none"> 1. Drum/Developer Fatigue 2. Erratic laser scanner 3. Developer/Drum or scanner drive hindered 4. Defective controller board 5. Paper path obstructed
Solution	<ol style="list-style-type: none"> 1. Replace drum/developer 2. Refer to service manual for proper adjustment 3. Verify drum/developer including drive gears is rotating freely. 4. Wipe moisture. Make certain humidifier heaters are enabled in copier if included 5. Examine all components are clean and installed correctly 	<ol style="list-style-type: none"> 1. Replace drum/developer 2. Replace laser scanner unit 3. Replace/repair broken gears, seized bearing and used belts 4. Replace controller board 5. Examine all components are clean and installed correctly



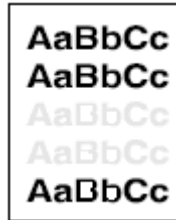
Drop outs

	Analog Copier	Digital Copier/Laser Printer
Cause	<ol style="list-style-type: none"> 1. Humid paper 2. Charger/Transfer unit are dirty or worn 3. Paper type not porous enough 4. Developer material depleted 5. Fuser roller imperfection 6. Low density level 7. Bias voltage too high 	<ol style="list-style-type: none"> 1. Humid paper 2. Charger/Transfer unit are dirty or worn 3. Paper type not porous enough 4. Developer material depleted 5. Fuser roller imperfection 6. Low density level 7. Bias voltage too low 8. Faulty laser scanner unit
Solution	<ol style="list-style-type: none"> 1. Replace paper. Turn on damp heaters if available 2. Clean or replace unit 3. Refer to manual and paper packaging for proper application 4. Replace developer 5. Replace fuser roller 6. Adjust density level to spec. 7. Adjust to system specification 	<ol style="list-style-type: none"> 1. Replace paper. Turn on damp heaters if available 2. Clean or replace unit 3. Refer to manual and paper packaging for proper application 4. Replace developer 5. Replace fuser roller 6. Adjust density level to spec. 7. Adjust to system specification 8. Replace laser scanner unit



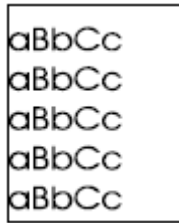
Margin Band

	Analog Copier	Digital Copier/Laser Printer
Cause	<ol style="list-style-type: none"> 1. Worn Doctor Blade/Bar 2. Mag roller bushing 3. Scored drum 4. Defective Mag/Developer roller 	<ol style="list-style-type: none"> 1. Worn Doctor Blade/Bar 2. Mag roller bushing 3. Scored drum 4. Defective Mag/Developer roller
Solution	<ol style="list-style-type: none"> 1. Replace Doctor Blade/Bar 2. Change Mag roller busing 3. Replace Drum 4. Change Mag/Developer roller 	<ol style="list-style-type: none"> 1. Replace Doctor Blade/Bar 2. Change Mag roller busing 3. Replace Drum 4. Change Mag/Developer roller



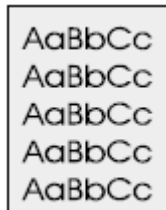
Perpendicular Faded Print

	Analog Copier	Digital Copier/Laser Printer
Cause	<ol style="list-style-type: none"> 1. Fluctuating Exposure lamp 2. HVT defective or dirty contacts 3. Defective Transfer roller 4. Discharge lamp illuminating at wrong interval 	<ol style="list-style-type: none"> 1. Fluctuating Laser scanner unit 2. HVT defective or dirty contacts 3. Defective Transfer roller 4. Erratic bias voltage
Solution	<ol style="list-style-type: none"> 1. Verify for any cuts in scanner cable. Replace lamp regulator brd. 2. Clean all HVT related contacts/replace HVT 3. Replace Transfer roller 4. Check broken wires. Replace LVPS or Discharge lamp 	<ol style="list-style-type: none"> 1. Replace Laser scanner unit 2. Clean all HVT related contacts/replace HVT 3. Replace Transfer roller 4. Verify Mag. Roller contact/Replace HVT



Faulty
Registration

	Analog Copier	Digital Copier/Laser Printer
Cause	<ol style="list-style-type: none"> 1. Aligning rollers dirty/worn 2. Registration clutch slipping 3. Paper set incorrectly in cassette 4. Worn feed rollers 5. feed one-way bearing slipping 6. Incompatible paper type creating feed delay 7. Photoconductor slipping 	<ol style="list-style-type: none"> 1. Aligning rollers worn/dirty 2. Registration clutch slipping 3. Paper set incorrectly in cassette 4. Worn feed rollers 5. feed one-way bearing slipping 6. Incompatible paper type creating feed delay 7. Photoconductor slipping
Solution	<ol style="list-style-type: none"> 1. Clean/replace aligning roller 2. Replace/adjust registration clutch 3. Verify paper tray guides and max allowable paper is within the line indication correct as required 4. Replace all paper tray rollers 5. Clean one way bearing and shaft/replace if required 6. Refer to manual for paper specification 7. Verify drum flanges 	<ol style="list-style-type: none"> 1. Clean/replace aligning roller 2. Replace/adjust registration clutch 3. Verify paper tray guides and max allowable paper is within the line indication correct as required 4. Replace all paper tray rollers 5. Clean one way bearing and shaft/replace if required 6. Refer to manual for paper specification 7. Verify drum flanges



Gray/Dark background copy

	Analog Copier	Digital Copier/Laser Printer
Cause	<ol style="list-style-type: none"> 1. Dirty Optics 2. Overtoneing 3. Low Bias voltage 4. Incorrect drum potential 5. Charge voltage set to high 6. Depleted Developer 7. Poor drum ground 	<ol style="list-style-type: none"> 1. High Bias voltage (monocomponent) 2. Low bias voltage (dual-component) 3. Overtoneing 4. Charge voltage set too low 5. Depleted Developer 6. Poor drum ground 7. Incorrect drum potential
Solution	<ol style="list-style-type: none"> 1. Clean mirrors 2. Calibrate toner ratio 3. Adjust/replace HVT 4. Perform drum potential adjustment or replace drum 5. Adjust/replace HVT 6. Replace developer 7. Replace/clean drum shaft/ground contact. Apply conductive grease 	<ol style="list-style-type: none"> 1. Adjust Bias voltage to spec. Replace HVT 2. Adjust Bias voltage to spec. Replace HVT 3. Calibrate toner ratio 4. Adjust/replace HVT 5. Replace Developer 6. Replace/clean drum shaft/ground contact. Apply conductive grease 7. Perform drum potential adjustment or replace drum



Horizontal white lines

	Analog Copier	Digital Copier/Laser Printer
Cause	<ol style="list-style-type: none"> 1. If repeated at specific interval, refer to defective ruler or measure distance 2. Drum arching 3. HVT shorting 	<ol style="list-style-type: none"> 1. If repeated at specific interval, refer to defective ruler or measure distance 2. Mag. Roller bias fluctuating 3. HVT shorting
Solution	<ol style="list-style-type: none"> 1. Replace part matching repetitive distance diameter 2. Replace drum 3. Change HVT 	<ol style="list-style-type: none"> 1. Replace part matching repetitive distance diameter 2. Verify/replace mag. Roller or contact 3. Replace HVT

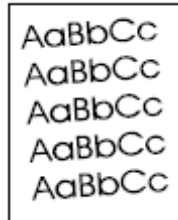
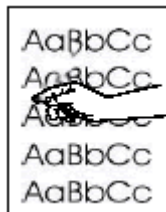


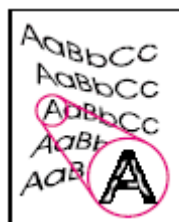
Image Skew

	Analog Copier	Digital Copier/Laser Printer
Cause	<ol style="list-style-type: none"> 1. Aligning roller out of spec or used 2. Optics Scanner misaligned 3. Incorrect paper type causing feed skew 4. Media incorrectly installed in paper tray 5. Paper path obstruction 6. original guide plate slightly diagonal 7. Document Feeder original belt used 8. Original glass surface dry 	<ol style="list-style-type: none"> 1. Aligning roller out of spec or used 2. Laser Scanner misaligned 3. Incorrect paper type causing feed skew 4. Media incorrectly installed in paper tray 5. Paper path obstruction 6. original guide plate slightly diagonal 7. Document Feeder original belt used 8. Original glass surface dry
Solution	<ol style="list-style-type: none"> 1. Adjust/replace aligning roller 2. Align Optics scanner to factory specification 3. Refer to manual for media specifications 4. Adjust tray guides 5. Monitor paper feed path and correct 6. Align original guide plate on glass 7. Replace/adjust/clean document feed belt 8. Apply lubricant evenly on glass 	<ol style="list-style-type: none"> 1. Adjust/replace aligning roller 2. Align Laser scanner to factory specification 3. Refer to manual for media specifications 4. Adjust tray guides 5. Monitor paper feed path and correct 6. Align original guide plate on glass 7. Replace/adjust/clean document feed belt 8. Apply lubricant evenly on glass



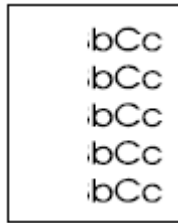
Toner not fused/smeared

	Analog Copier	Digital Copier/Laser Printer
Cause	<ol style="list-style-type: none"> 1. Incompatible paper type 2. Incorrect fusing temperature for media type 3. Defective/worn fuser rollers 4. Insufficient pressure between Upper and Lower fuser rollers 	<ol style="list-style-type: none"> 1. Incompatible paper type 2. Incorrect fusing temperature for media type 3. Defective/worn fuser rollers 4. Insufficient pressure between Upper and Lower fuser rollers
Solution	<ol style="list-style-type: none"> 1. Refer to manual for media specification 2. Refer to manual for media fuser setting 3. Replace fuser rollers and cleaning web/oily roller 4. Adjust fusing roller pressure/replace fuser bushings/verify pressure springs 	<ol style="list-style-type: none"> 1. Refer to manual for media specification 2. Refer to manual for media fuser setting 3. Replace fuser rollers and cleaning web/oily roller 4. Adjust fusing roller pressure/replace fuser bushings/verify pressure springs



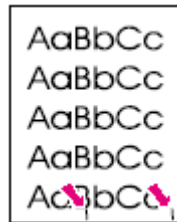
Wavy Print

	Analog Copier	Digital Copier/Laser Printer
Cause	<ol style="list-style-type: none"> 1. Scanner mirrors out of true 2. Lens/CCD assembly misaligned 3. Drum asymmetrical/worn 4. Drum condensation 5. Original not placed flat on glass 6. Damaged drive gear/belt 	<ol style="list-style-type: none"> 1. Laser unit defect 2. Drum asymmetrical/worn 3. Drum condensation 4. Original not placed flat on glass 5. Damaged drive gear/belt
Solution	<ol style="list-style-type: none"> 1. Adjust to factory specification 2. Adjust to factory specification 3. Replace drum 4. Turn on damp heaters if available, or relocate system in a room temperature environment 5. Adjust lid/document feeder for appropriate pressure when in lowered position 6. Locate and replace defective gear or belt 	<ol style="list-style-type: none"> 1. Replace Laser scanner unit 2. Replace drum 3. Turn on damp heaters if available, or relocate system in a room temperature environment 4. Adjust lid/document feeder for appropriate pressure when in lowered position 5. Locate and replace defective gear or belt



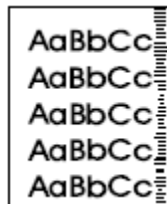
Parallel Half Print

	Analog Copier	Digital Copier/Laser Printer
Cause	<ol style="list-style-type: none"> 1. Paper feed direction does not match programmed media in paper tray 2. Incorrect drum to developer gap 3. Obstruction in the optics assembly 4. Drum shutter in exposure path 5. Defective discharge lamps 	<ol style="list-style-type: none"> 1. Paper feed direction does not match programmed media in paper tray 2. Incorrect drum to developer gap 3. Obstruction in the laser scanner assembly 4. Defective led array
Solution	<ol style="list-style-type: none"> 1. Correct and adjust matching sizes 2. Adjust gap to factory default/replace gapping wheels 3. Verify and remove 4. Adjust/replace drum shutter 5. Replace lamps 	<ol style="list-style-type: none"> 1. Correct and adjust matching sizes 2. Adjust gap to factory default/replace gapping wheels 3. Verify and remove 4. Replace led array assembly



Repetitive Defects

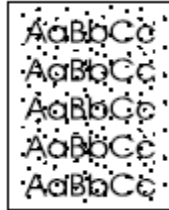
	Analog Copier	Digital Copier/Laser Printer
Cause	1. If repeated at specific interval, refer to defective ruler or measure distance	1. If repeated at specific interval, refer to defective ruler or measure distance
Solution	1. Replace part matching repetitive distance diameter	1. Replace part matching repetitive distance diameter



Tire tracks

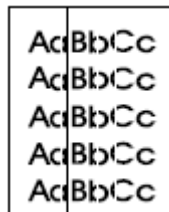
	Analog Copier	Digital Copier/Laser Printer
Cause	<ol style="list-style-type: none"> 1. Faulty Magnetic Roller 2. Soiled PCR 3. Obstruction in Image process components 4. Clumped toner 	<ol style="list-style-type: none"> 1. Faulty Magnetic Roller 2. Soiled PCR 3. Obstruction in Image process components 4. Clumped toner
Solution	<ol style="list-style-type: none"> 1. Replace MR 2. Clean/Replace PCR 3. Remove/Replace obstructing part 	<ol style="list-style-type: none"> 1. Replace MR 2. Clean/Replace PCR 3. Remove/Replace obstructing part

	4. System Operating Temperature 10 degrees to 32 degrees C 20 percent to 80 percent RH Consumable Storage Temperature 0 degrees to 35 degrees C 35 percent to 85 percent RH	4. System Operating Temperature 10 degrees to 32 degrees C 20 percent to 80 percent RH Consumable Storage Temperature 0 degrees to 35 degrees C 35 percent to 85 percent RH
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Toner specks

	Analog	Digital/Laser Printer
Cause	1. Out of spec. toner recovery blade 2. Damaged magnetic roller sealing blade 3. Defective Photoconductor 4. Pin holes on PCR	1. Out of spec. toner recovery blade 2. Damaged magnetic roller sealing blade 3. Defective Photoconductor 4. Pin holes on PCR
Solution	1. Adjust/Replace toner recovery blade 2. Adjust/Replace sealing blade 3. Replace/Wipe (with cotton pad) photoconductor 4. Replace PCR	1. Adjust/Replace toner recovery blade 2. Adjust/Replace sealing blade 3. Replace/Wipe (with cotton pad) photoconductor 4. Replace PCR



Vertical black lines

	Analog	Digital/Laser Printer
Cause	1. Scratched drum 2. Residue on document feeder slit glass 3. Faulty wiper blade 4. Burnt area on exposure lamp 5. Dirty charge corona/PCR	1. Scratched drum 2. Residue on document feeder slit glass 3. Faulty wiper blade 4. Burnt area on exposure lamp 5. Dirty charge corona/PCR
Solution	1. Replace drum 2. Wipe clean slit glass 3. Replace wiper blade 4. Replace exposure lamp 5. Clean/replace charge	1. Replace drum 2. Wipe clean slit glass 3. Replace wiper blade 4. Replace exposure lamp 5. Clean/replace charge