16. IMAGE QUALITY PROBLEM

16.1 How to identify problematic part

- In this chapter, troubleshooting is divided into “initial checks” and “troubleshooting procedures classified by image failures.”
- If any image failure has occurred, first make the initial checks, then proceed to the corresponding image failure troubleshooting procedure.

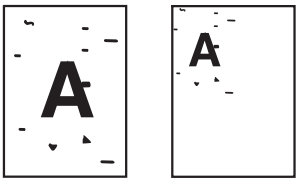
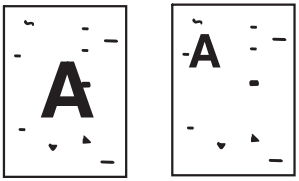
16.1.1 Initial check items

- Determine if the failure is attributable to a basic cause or causes.

Section	Step	Check	Result	Action
Paper	1	Paper meets product specifications.	NO	• Instruct user to use paper that meets specifications and is recommended.
	2	Paper is damp.	YES	• Change paper for one that is dry. Then, instruct user to use paper that meets specifications and in how to store paper.
Original	3	Original is placed correctly.	NO	• Reposition original.
	4	Original is written in light pencil.	YES	• Instruct user to use original with appropriate image density.
	5	Original is transparent (OHP film, etc.).	YES	• Instruct user to use originals that meet specifications.
	6	Original glass is dirty or scratchy.	YES	• Clean original glass. • Change original glass.
PM parts	7	The PM parts relating to image formation have reached the end of cleaning/replacement cycles.	YES	• Clean PM parts. • Change PM parts.
Adjustment items	8	Adjustment item in which readjustment is made to improve the image faulty.	YES	• Re-adjustment

16.1.2 Identification of the faulty system

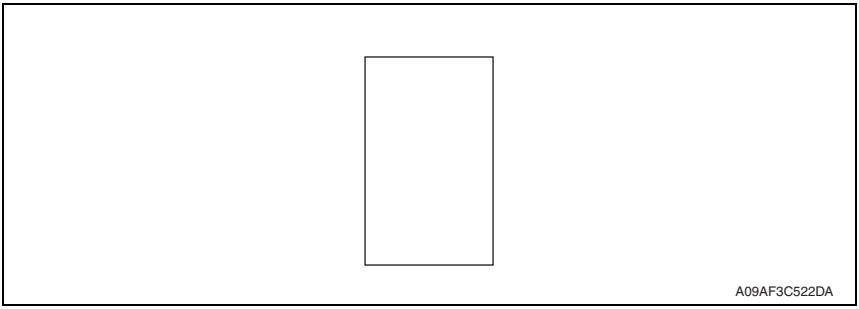
- Determine if the failure is attributable to an input system (scanner) or output system (printer).

<table>
<tr><th>Check</th><th>Result</th><th>Action</th></tr>
<tr><td rowspan="2">Copy made at a reduced ratio
 
A09AF3C519DA</td><td>Full-size Reduced
 
A09AF3C520DA</td><td>Input system (scanner)</td></tr>
<tr><td>Full-size Reduced
 
A09AF3C521DA</td><td>Output system (printer)</td></tr>
</table>

16.2 Solution

16.2.1 Scanner section: Blank copy

A. Typical faulty images

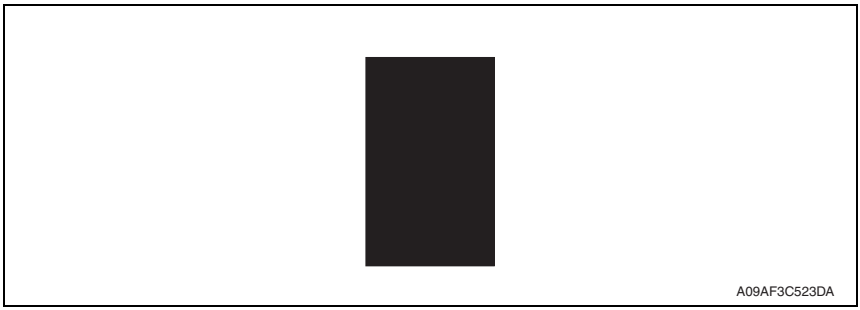


B. Troubleshooting procedure

Step	Check	Result	Action
1	CIS module (CIS) connector is loose.	YES	• Reconnect.
2	Printer control board (PRCB) connector P102 is loose.	YES	• Reconnect.
		NO	• Change PRCB. • Change CIS.

16.2.2 Scanner section: Black copy

A. Typical faulty images



B. Troubleshooting procedure

Step	Check	Result	Action
1	Exposure lamp turns ON when the power switch is turned ON.	NO	Go to step 3.
2	Exposure lamp is abnormally lit (flickers or abnormally dark) when the power switch is turned ON.	NO	Go to step 4.
3	CIS module (CIS) connector is loose.	YES	• Reconnect.
4	Printer control board (PRCB) connector P102 is loose.	YES	• Reconnect.
		NO	• Change PRCB. • Change CIS.

16.2.3 Scanner section: Low image density

A. Typical faulty images

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B. Troubleshooting procedure

Step	Check	Result	Action
1	Shading sheet reading portion (the portion on the back-side of the original glass to which original width scale is affixed) is dirty.	YES	• Clean.
2	CIS module (CIS) connector is loose.	YES	• Reconnect.
3	Printer control board (PRCB) connector P102 is loose.	YES	• Reconnect.
		NO	• Change PRCB. • Change CIS.

16.2.4 Scanner section: Foggy background or rough image

A. Typical faulty images

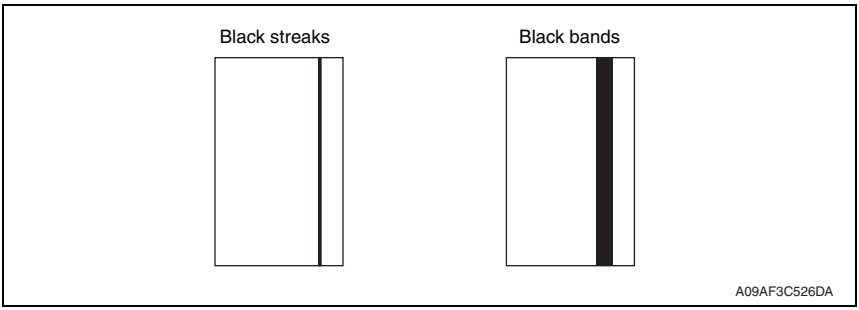
A09AF3C525DA

B. Troubleshooting procedure

Step	Check	Result	Action
1	Original glass is dirty.	YES	• Clean.
2	CIS module components (glass, lamp) are dirty.	YES	• Clean.
3	CIS module (CIS) connector is loose.	YES	• Reconnect.
4	Printer control board (PRCB) connector P102 is loose.	YES	• Reconnect.
		NO	• Change PRCB. • Change CIS.

16.2.5 Scanner section: Black streaks or bands

A. Typical faulty images



B. Troubleshooting procedure

Step	Check	Result	Action
1	Original glass is dirty, scratchy, worn, or damaged.	YES	• Clean or change.
2	Shading sheet reading portion (the portion on the back-side of the original glass to which original width scale is affixed) is dirty.	YES	• Clean.
3	CIS module components (glass, lamp, sensor) are dirty, scratchy, worn, or damaged.	YES	• Clean or change.
4	CIS module (CIS) connector is loose.	YES	• Reconnect.
5	Printer control board (PRCB) connector P102 is loose.	YES	• Reconnect.
		NO	• Change PRCB. • Change CIS.

16.2.6 Scanner section: Black spots

A. Typical faulty images

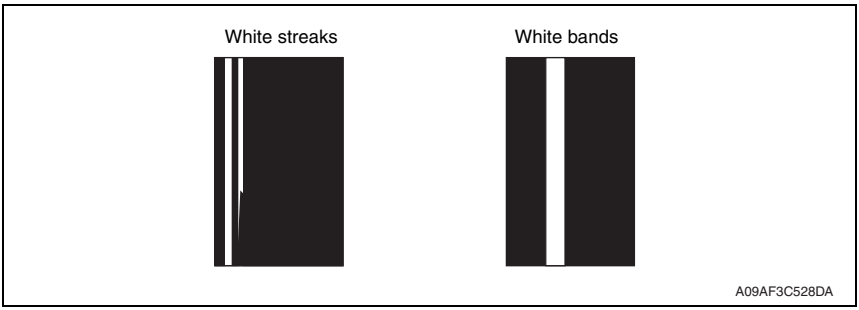
A09AF3C527DA

B. Troubleshooting procedure

Step	Check	Result	Action
1	Original glass is dirty or scratchy.	YES	• Clean.
2	CIS module components (glass, lamp, sensor) are dirty, scratchy, worn, or damaged.	YES	• Clean or change.
3	CIS module (CIS) connector is loose.	YES	• Reconnect.
4	Printer control board (PRCB) connector P102 is loose.	YES	• Reconnect.
		NO	• Change PRCB. • Change CIS.

16.2.7 Scanner section: White streaks or bands

A. Typical faulty images

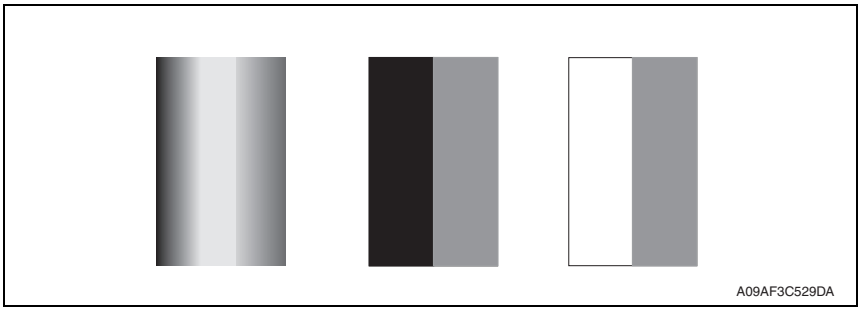


B. Troubleshooting procedure

Step	Check	Result	Action
1	Original glass is dirty, scratchy, worn, or damaged.	YES	• Clean or change.
2	Shading sheet reading portion (the portion on the back-side of the original glass to which original width scale is affixed) is dirty.	YES	• Clean.
3	CIS module components (glass, lamp, sensor) are dirty, scratchy, worn, or damaged.	YES	• Clean or change.
4	CIS module (CIS) connector is loose.	YES	• Reconnect.
5	Printer control board (PRCB) connector P102 is loose.	YES	• Reconnect.
		NO	• Change PRCB. • Change CIS.

16.2.8 Scanner section: Uneven image density

A. Typical faulty images

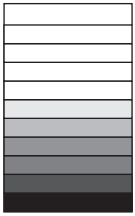


B. Troubleshooting procedure

Step	Check	Result	Action
1	Original glass is dirty, scratchy, worn, or damaged.	YES	• Clean or change.
2	Shading sheet reading portion (the portion on the back-side of the original glass to which original width scale is affixed) is dirty.	YES	• Clean.
3	Exposure lamp is abnormally lit (flickers or abnormally dark) when the power switch is turned ON.	NO	• Go to step 5.
4	CIS module components (glass, lamp, sensor) are dirty, scratchy, worn, or damaged.	YES	• Clean or change.
5	CIS module (CIS) connector is loose.	YES	• Reconnect.
6	Printer control board (PRCB) connector P102 is loose.	YES	• Reconnect.
		NO	• Change PRCB. • Change CIS.

16.2.9 Scanner section: Gradation reproduction failure

A. Typical faulty images



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B. Troubleshooting procedure

Step	Check	Result	Action
1	Original glass is dirty, scratchy, worn, or damaged.	YES	• Clean or change.
2	Shading sheet reading portion (the portion on the back-side of the original glass to which original width scale is affixed) is dirty.	YES	• Clean.
3	Exposure lamp is abnormally lit (flickers or abnormally dark) when the power switch is turned ON.	NO	• Go to step 5.
4	CIS module components (glass, lamp, sensor) are dirty, scratchy, worn, or damaged.	YES	• Clean or change.
5	CIS module (CIS) connector is loose.	YES	• Reconnect.
6	Printer control board (PRCB) connector P102 is loose.	YES	• Reconnect.
		NO	• Change PRCB. • Change CIS.

16.2.10 Scanner section: Periodically uneven image

A. Typical faulty images

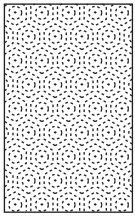
A09AF3C531DA

B. Troubleshooting procedure

Step	Check	Result	Action
1	Scanner motor (M4) is securely fastened using the dedicated fixing screws.	NO	• Secure in position.
2	Scanner motor (M4) drive mechanism is dirty or damaged.	YES	• Clean or change.
3	Scanner drive mechanism pulley is dirty with foreign matter, scratchy, deformed, worn, or damaged.	YES	• Remove foreign matter or change.
4	Scanner rails are dirty with foreign matter, scratchy, deformed, worn, or damaged.	YES	• Clean or change.
5	CIS module moves smoothly. <Check procedure> Gently move the scanner by hand to check for smooth operation.	NO	• Reinstall CIS.
6	CIS module (CIS) connector is loose.	YES	• Reconnect.
7	Printer control board (PRCB) connector P102 is loose.	YES	• Reconnect.
		NO	• Change PRCB.

16.2.11 Scanner section: Moire

A. Typical faulty images



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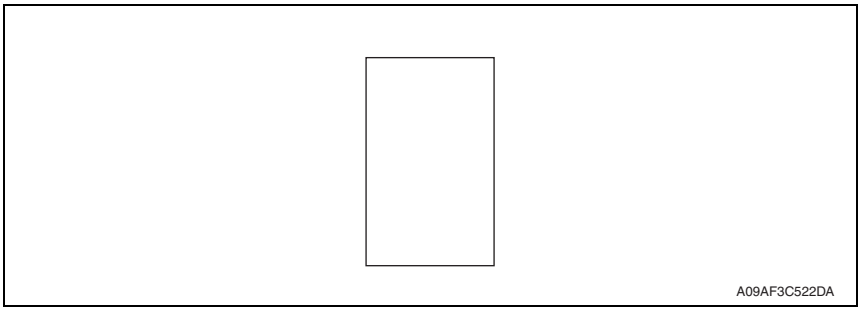
B. Troubleshooting procedure

Step	Check	Result	Action
1	Moire distortions recur even after the orientation of original has been changed.	NO	• Change the original mode (select one other than that resulted in moire).
2	Moire distortions recur even after the original mode has been changed.	NO	• Change the original image mode.
3	Moire distortions recur even when the zoom ratio is changed.	NO	• Change the zoom ratio setting.
4	The problem has been eliminated through the checks of step up 3.	NO	• Adjust CCD MAIN ZOOM and CCD SUB ZOOM. See P.101

16.2.12 Printer section: Blank copy

A. Typical faulty images



B. Troubleshooting procedure

Step	Check	Result	Action
1	Imaging unit is installed correctly.	NO	• Reinstall.
2	Connector between the imaging unit and copier is dirty.	YES	• Clean.
3	PH shutter (located along the laser path between the PH unit and drum) is not in correct position or malfunctions.	YES	• Correct or reinstall.
4	Connectors CN1PRCB and CN2PRCB in PH unit come off or lift.	YES	• Reconnect.
5	Transfer roller unit is installed correctly.	NO	• Reinstall.
6	Transfer current contact is dirty, broken, or bent.	YES	• Clean, correct, or change.
7	Developing bias contact is dirty, broken, or bent.	YES	• Clean, correct, or change.
8	High voltage unit (HV1) connectors is loose.	YES	• Reconnect.
9	The following voltage is supplied from the printer control board (PRCB). <Check procedure> Check that there is 24 V developing across the printer control board pin and GND when the power switch is turned ON (during a copy cycle or a standby state).	YES	• Change IU. • Change PH unit. • Change high voltage unit (HV1).
		NO	• Change printer control board (PRCB).

16.2.13 Printer section: Black copy

A. Typical faulty images

A09AF3C523DA

B. Troubleshooting Procedure

Step	Check	Result	Action
1	Drum charge corona grid mesh and comb electrode are loose.	YES	• Reinstall.
2	Drum charge corona contact is dirty, scratchy, folded, bent, or damaged.	YES	• Correct or change.
3	Grid bias contact is dirty, folded, or bent.	YES	• Clean, correct, or change.
4	Drum ground contact is dirty, scratchy, bent, or damaged.	YES	• Clean, correct, or change.
5	High voltage unit (HV1) connectors is loose.	YES	• Reconnect.
6	The PH unit cable is loose.	YES	• Reconnect.
7	The following voltage is supplied from the printer control board (PRCB). <Check procedure> Check that there is 24 V developing across the printer control board pin and GND when the power switch is turned ON (during a copy cycle or a standby state).	YES	• Change IU. • Change PH unit. • Change high voltage unit (HV1).
		NO	• Change printer control board (PRCB).

16.2.14 Printer section: Low image density

A. Typical faulty images

A09AF3C524DA

B. Troubleshooting procedure

Step	Check	Result	Action
1	The image changes when “TONER SUPPLY” in SERVICE MODE is executed.	YES	• Replenish the supply of toner using “TONER SUPPLY”.
2	The image changes when “ID ADJUST” and “VG ADJUST” are executed.	YES	• Readjust. For details, see ADJUSTING/SETTING.
3	Image transfer current contact is dirty, folded, or bent.	YES	• Clean, correct, or change.
4	Developing bias contact is dirty, folded, or bent.	YES	• Clean, correct, or change.
5	High voltage unit (HV1) connectors is loose.	YES	• Reconnect.
6	TCR sensor (TCRS) is dirty with foreign matter (such as paper dust) other than developer.	YES	• Clean.
7	Is a power voltage supplied across CN-2, 3 on PRCB? <Check procedure> • Check voltage across a master board pin and GND when the power switch is turned ON.	NO	• Change TCR sensor (TCRS) and then change developer.
8	The following voltage is supplied from the printer control board (PRCB). <Check procedure> • Check that there is 24 V developing across the printer control board pin and GND when the power switch is turned ON (during a copy cycle or a standby state).	YES	• Change IU. • Change high voltage unit (HV1).
		NO	• Change printer control board (PRCB).

16.2.15 Printer section: Foggy background or rough image

A. Typical faulty images

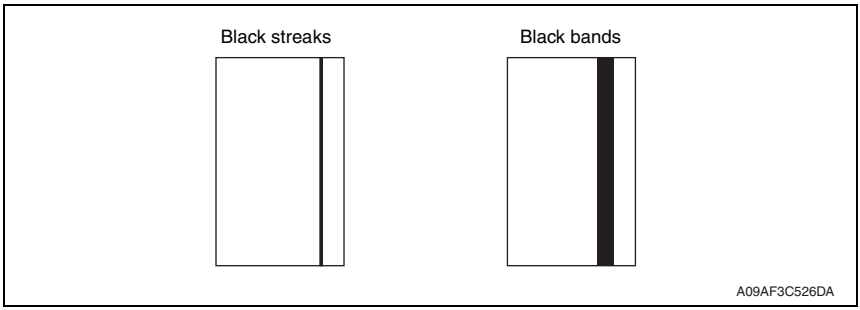
A09AF3C525DA

B. Troubleshooting procedure

Step	Check	Result	Action
1	The image changes when “ID ADJUST” and “VG ADJUST” are executed.	YES	• Readjust. For details, see ADJUSTING/SETTING.
2	Drum surface and the areas in contact with Ds collars are dirty with foreign matter, or deformed or worn.	YES	• Clean or change.
3	Grid bias contact is dirty, scratchy, deformed, worn, or damaged.	YES	• Clean, correct, or change.
4	TCR sensor (TCRS) is dirty with foreign matter (such as paper dust) other than developer.	YES	• Clean.
5	Is a power voltage supplied across CN-2, 3 on PRCB? <Check procedure> • Check voltage across a master board pin and GND when the power switch is turned ON.	NO	• Change TCR sensor (TCRS) and then change developer.
6	The following voltage is supplied from the printer control board (PRCB). <Check procedure> • Check that there is 24 V developing across the printer control board pin and GND when the power switch is turned ON (during a copy cycle or a standby state).	YES	• Adjust Db. For details, see ADJUSTING/SETTING. • Change drum. • Change imaging unit. • Change high voltage unit (HV1).
		NO	• Change printer control board (PRCB).

16.2.16 Printer section: black streaks or bands

A. Typical faulty images



B. Troubleshooting procedure

Step	Check	Result	Action
1	Drum is dirty or scratchy.	YES	• Clean or change.
2	Foreign matter (such as paper dust) sticks to the cleaning blade of IU or the blade curves upward.	YES	• Remove foreign matter, correct, or change.
3	DB of IU is plugged with foreign matter (such as paper dust).	YES	• Remove foreign matter.
4	Drum charge corona grid mesh and comb electrode are dirty, scratchy, deformed, damaged, or out of position.	YES	• Clean or change.
5	Fusing roller is dirty or scratchy.	YES	• Clean or change.
6	PH window of the PH unit is dirty or scratchy.	YES	• Clean or change.
		NO	• Change IU.

16.2.17 Printer section: Black spots

A. Typical faulty images

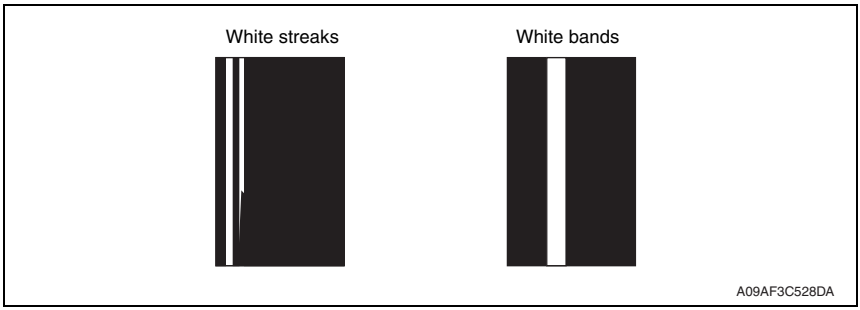
A09AF3C527DA

B. Troubleshooting Procedure

Step	Check	Result	Action
1	Toner is present along the paper path.	YES	• Clean.
2	Drum is dirty or scratchy.	YES	• Clean or change.
3	Tip of the drum paper separator finger is dirty, scratchy, deformed, worn, or damaged.	YES	• Clean or change.
4	Fusing roller is dirty or scratchy.	YES	• Clean or change.
5	Tip of the fusing paper separator finger is dirty, scratchy, deformed, worn, or damaged.	YES	• Clean or change fusing paper separator fingers and finger springs.
6	The image changes when “VG ADJUST” is executed.	YES	• Readjust. For details, see ADJUSTING/SETTING.

16.2.18 Printer section: Blank streaks or bands

A. Typical faulty images

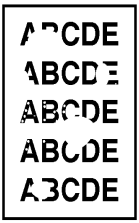


B. Troubleshooting procedure

Step	Check	Result	Action
1	Drum ground terminal is dirty, scratchy, deformed, or damaged.	YES	• Clean, correct, or change.
2	DB of IU is plugged with foreign matter (such as paper dust).	YES	• Remove foreign matter.
3	Drum charge corona grid mesh and comb electrode are dirty, scratchy, deformed, or damaged.	YES	• Clean, correct, or change.
4	Post-fusing guide plate is dirty, scratchy, deformed, worn, or damaged.	YES	• Clean or change.
5	PH window of the PH unit is dirty, scratchy, or damaged.	YES	• Clean or change.
		NO	• Change IU.

16.2.19 Printer section: Void areas

A. Typical faulty images



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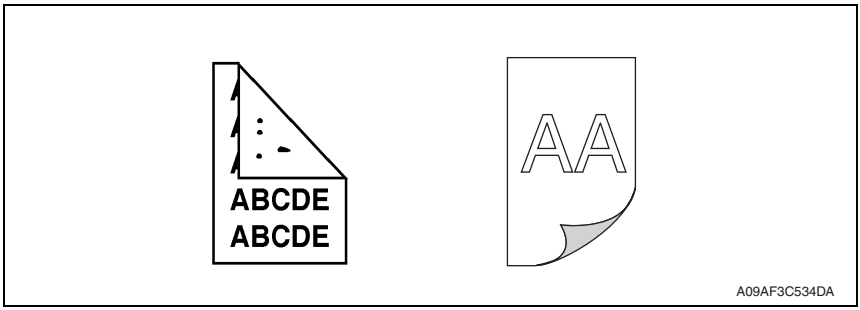
B. Troubleshooting procedure

Step	Check	Result	Action
1	Foreign matter is present along the paper path.	YES	• Remove foreign matter.
2	Paper dust plugs up the paper dust remover.	YES	• Clean or change.
3	Drum charge corona, grid mesh, and comb electrode are loose.	YES	• Reinstall.
4	Drum charge corona contact is dirty, scratchy, deformed, worn, or damaged.	YES	• Clean, correct, or change.
5	Developing roller is dirty, scratchy, deformed, worn, or damaged.	YES	• Clean or change.
6	Toner is even on sleeve/magnet roller.	NO	• Adjust Db. For details, see ADJUSTING/SETTING.
7	Developer is not even in the developer mixing chamber of IU.	YES	• Even out developer in the developer mixing chamber.
8	DB of IU is plugged with foreign matter (such as paper dust).	YES	• Remove foreign matter.
9	Transfer roller is dirty, scratchy, deformed, worn, or damaged.	YES	• Clean, correct, or change.
10	Transfer roller unit is installed correctly.	NO	• Reinstall.
11	Charge neutralizing plate is dirty, scratchy, folded, or bent.	YES	• Clean, correct, or change.
12	Fusing roller is dirty, scratchy, deformed, or worn.	YES	• Clean or change.
		NO	• Change IU.

16.2.20 Printer section: Smear on back

A. Typical faulty images

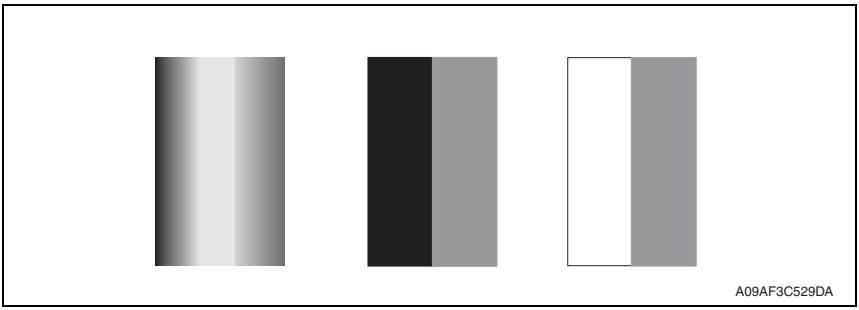


B. Troubleshooting procedure

Step	Check	Result	Action
1	Toner is spilled over area inside copier.	YES	• Clean interior.
2	Toner is present along the paper path.	YES	• Clean.
3	Fusing pressure roller is dirty, scratchy, or damaged.	YES	• Clean or change.
4	Transfer roller is dirty.	YES	• Clean or change.
5	Grid bias contact is dirty, scratchy, deformed, worn, or damaged.	YES	• Clean, correct, or change.
		NO	• Change high voltage unit (HV1). • Change printer control board (PRCB).

16.2.21 Printer section: Uneven image density

A. Typical faulty images

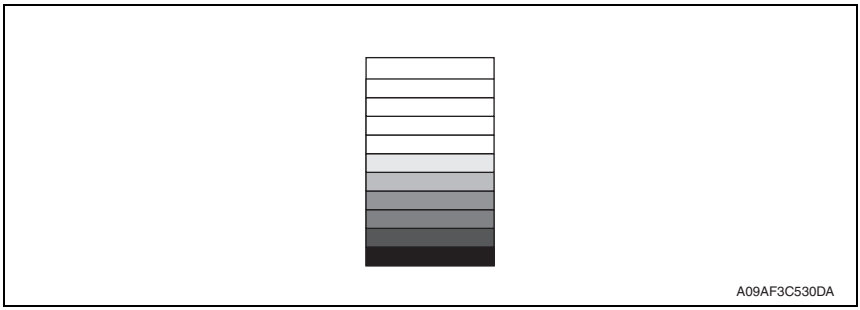


B. Troubleshooting Procedure

Step	Check	Result	Action
1	Drum ground plate is dirty, scratchy, deformed, worn, or damaged.	YES	• Clean, correct, or change.
2	Drum charge corona grid mesh and comb electrode are dirty, scratchy, deformed, worn, damaged, or loose.	YES	• Clean, correct, or change.
3	Transfer roller is dirty, scratchy, deformed, worn, or damaged.	YES	• Clean or change.
4	Sleeve/magnet roller is dirty, scratchy, deformed, worn, or damaged.	YES	• Clean or change.
5	Toner is even on sleeve/magnet roller.	NO	• Adjust Db. For details, see ADJUSTING/SETTING.
6	Developer is not even in the developer mixing chamber of IU.	YES	• Even out developer in the developer mixing chamber.
		NO	• Change IU. • Change printer control board (PRCB).

16.2.22 Printer section: Gradation reproduction failure

A. Typical faulty images



B. Troubleshooting Procedure

Step	Check	Result	Action
1	Drum is dirty.	YES	• Clean.
2	Transfer roller is dirty, scratchy, deformed, worn, or damaged.	YES	• Clean or change.
3	The PH unit cable is loose.	YES	• Reconnect.
4	PH window of PH unit is dirty.	YES	• Clean.
5	TCR sensor (TCRS) is dirty with foreign matter (such as paper dust) other than developer.	YES	• Clean.
6	Is a power voltage supplied across CN-2, 3 on PRCB? <Check procedure> • Check voltage across a master board pin and GND when the power switch is turned ON.	NO	• Change TCR sensor (TCRS) and developer.
		YES	• Change printer control board (PRCB).

16.2.23 Printer section: Periodically uneven image

A. Typical faulty images

A09AF3C531DA

B. Troubleshooting procedure

Step	Check	Result	Action
1	IU is securely fastened using the dedicated fixing screws.	NO	• Secure in position.
2	PH unit is securely fastened using the dedicated fixing screws.	NO	• Secure in position.
3	IU drive mechanism is dirty or damaged.	YES	• Clean or change.
4	Drum surfaces in contact with Ds collars and drive mechanism are dirty, scratchy, deformed, or worn.	YES	• Clean or change.
5	Registration roller drive mechanism is dirty, scratchy, deformed, or worn.	YES	• Clean or change.
6	Fusing unit drive mechanism is dirty, scratchy, deformed, or worn.	YES	• Clean or change.
		NO	• Change printer control board (PRCB).