

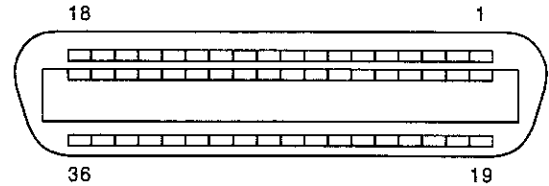
# [10] INTERFACE

## 2. Connector

Female 36-pin DDK 57LE-40360-730B (D29) or equivalent.

### 1. Outline

This interface has been realized by extending the conventional Centronics interface to bi-direction. The bi-directional communication is performed with the Centronics interface signal. The interface supports the Nibble/Peppy mode. Acknowledgement of the interface signal depends on the operation mode. In the Nibble mode, the operation is controlled by the host computer to provide asynchronous, reverse channel (Printer → Host PC). The Peppy mode is similar to the Nibble mode except for the Peppy burst cycle and the reverse channel. The ECP (Extended Capability Port) mode provides asynchronous, one-byte width, single direction communication channel. By using the Peppy mode, high speed burst data transmission in the forward direction is allowed without special host parallel port. RLE (Run Length) compression is also supported.



### Pin Configuration

The pin numbers and signal names are given in the table below.

1284-B Connector Pin Assignments

PIN#	Source	Mode					
		Compatible (Not used)	Nibble	Byte (Not used)	Peppy	ECP	EPP (Not used)
1	H	nStrobe	HostClk	HostClk	HostClk	HostClk	nWrite
2	Bi-Di*	Data 1 (Least Significant Bit)					AD1
3	Bi-Di*	Data 2					AD2
4	Bi-Di*	Data 3					AD3
5	Bi-Di*	Data 4					AD4
6	Bi-Di*	Data 5					AD5
7	Bi-Di*	Data 6					AD6
8	Bi-Di*	Data 7					AD7
9	Bi-Di*	Data 8 (Most Significant Bit)					AD8
10	P	nAck	Ptrclk	PtrClk	PeriphClk	PeriphClk	Intr
11	P	Busy	PtrBusy	PtrBusy	PeriphAck	PeriphAck	nWait
12	P	PError	AckDataReq	AckDataReq	nAckReverse	nAckReverse	User Defined 1
13	P	Select	Xflag	Xflag	Xflag	Xflag	User Defined 3
14	H	nAutoFd	HostBusy	HostBusy	HostAck	HostAck	nDStrb
15		Not Defined					
16		Logic Gnd					
17		Chassis Gnd					
18	P	Peripheral Logic High					
19		Signal Ground (nStrobe)					
20		Signal Ground (Data 1)					
21		Signal Ground (Data 2)					
22		Signal Ground (Data 3)					
23		Signal Ground (Data 4)					
24		Signal Ground (Data 5)					
25		Signal Ground (Data 6)					
26		Signal Ground (Data 7)					
27		Signal Ground (Data 8)					
28		Signal Ground (PError, Select, nAck)					
29		Signal Ground (Busy, nFault)					
30		Signal Ground (nAutoFd, nSelectIn, nInit)					
31	H	nInit	nInit	nInit	nReverse Request	nReverseRequest	nInit
32	P	nFault	nDataAvail	nDataAvail	nPeriph Request	nPeriphRequest	User Defined 2
33		Not Defined					
34		Not Defined					
35		Not Defined					
36	H	nSelectIn	1284 Active	1284 Active	1284 Active	1284 Active	nAStrb

\* Data signals will be driven by some but not all peripheral devices.

Pins not defined by this spec are used by various manufacturers at their own risk.

The 1284-B connector is a 36 signal ribbon type connector.

# [11] ERROR MESSAGE AND TROUBLESHOOTING

## 1. Error message

The FO-2850 allows error check by the Windows Printing System.

Error check can be also made on the LCD of the operation.

Display	Error content	Process
SERVICE CALL (1)	PCU ROM error	Check the IC304 peripheral circuit on the PS/PCU PWB
SERVICE CALL (2)	PCU RAM error	Check the IC304 peripheral circuit on the PS/PCU PWB
SERVICE CALL (3)	Serial communication error	Check the IC304 peripheral circuit on the PS/PCU PWB
SERVICE CALL (4)	Optical system error	Check the optical unit and scanner mirror rotation.
		Check the PMD/APCSTT/PMCLK/SYNC signals on the PS/PCU PWB.
SERVICE CALL (5)	High Temperature Error	Check the thermistor peripheral circuit and the heater lamp control circuit on the PS/PCU PWB.
SERVICE CALL (6)	Low Temperature Error	Check the AC line and the HLON signal on the PS/PCU PWB.
		Check the temperature fuse.
SERVICE CALL (7)	Thermistor Open	Check the thermistor peripheral circuit on the PS/PCU PWB.

FAX communication error code

### Transmission error

E-0	Able to recognize handshake signal, but it has errors. (The bit stream after flag has some error)
E-1	Cannot recognize the handshake signal from the receiver side. (*NFS/DIS)
E-2	Line disconnected during transmission. (*CFR)
E-3	Line disconnected after modem speed fall back. (*FTT)
E-4	Line disconnected during multi-page transmission. (*MCF)
	Not defined
E-6	Cannot recognize the handshake signal for next page at receiver side. (*RTN/RTP)
E-7	"disconnect signal" is received at transmitter side. (**DCN)
E-8	Error was not corrected after the predetermined number of retries because of an error in a part of a page. (*PPR)
	Not defined
	Not defined
E-11	Not defined
E-12	Error occurred just after fall-back (*CTR)
E-13	Error occurred after a response to a retransmission end command was received. (*ERR)

### Reception error

E-0	Able to recognize handshake signal, but it has errors. (The bit stream after flag has some error)
E-1	Line disconnected during reception. (*NSS/DCS)
E-2	Cannot recognize the handshake signal from the transmitter side. (*NSC/DTC)
E-3	Cannot recognize the last handshake signal from the transmitter side. (*EOP)
E-4	Cannot recognize the handshake signal for next page from the transmitter side in the case of mode change. (*EOM)
E-5	Cannot recognize the handshake signal for next page from transmitter side. (*MPS)
	Not defined
E-7	"disconnect signal" is received at receiver side. (**DCN)
E-8	Error occurred upon completion of reception of all pages. (*PPS-EOP)
E-9	Error occurred when mode was changed or transmission/reception switching was performed. (*PPS-EOM)
E-10	Error occurred during partial page or physical page reception. (*PPS-MPS/NULL)
E-11	Not defined
E-12	Error occurred during or just after fallback. (*CTC)
E-13	Error occurred after retransmission end command was received. (*EOR)

Remark (\*signal): If some error happen after this signal is received, the controller reports this error.

(\*\*DCN): If the unexpected "DCN" signal is received, the controller reports this error.

Action: Stop the fax transmission/reception.  
 In the case of transmission, clear the image in the memory.  
 In the case of reception, print the image stored in the memory.  
 During scanning operation, stop the scanning.

Recover: Press STOP key

## 2. Troubleshooting 1

### A. Miscellaneous Errors

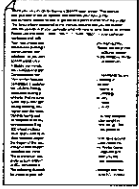
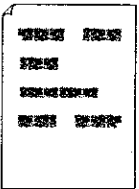

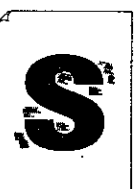
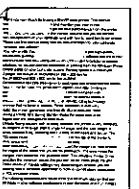
If you have a problem with the operation of your laser printer, check the table below for the problem symptoms, and follow the instructions in the **Remedy** column to solve the problem.


For more detailed information about the causes of these problems and their possible solutions, refer to the **Problem Solving** section of the Windows Printing System on-line help.

Problem	Possible Cause	Remedy
No display	Power cord is not connected properly	Check the power cord connection.
The Windows Printing System driver cannot be installed.	There may be insufficient free space on the computer's hard disk	Delete any unnecessary files and applications to make more space available.
	A non-compatible operating system might be in use	Use the correct operating system (Windows 3.1, Windows for Workgroups 3.1x or Windows 95).
The printer does not print.	Interface cable is not connected properly	Check the interface cable connection.
	Interface cable is defective	Check the cable with a computer and printer which you know work. If printing is still not possible, replace the interface cable (*).
	Port setting is incorrect	Check the printer settings in the Windows Control Panel to make sure that the print job is being sent to the correct port (for example, LPT1).
	Imaging and drum cartridge are not installed properly	Check that the imaging cartridge and drum cartridge are installed correctly.
	A paper jam has occurred	Clear the paper jam.
	The printer may be configured incorrectly	Print a Windows Printing System Test Page. If the test page prints correctly, Windows Printing System is able to print. Check the application to make sure that all print settings are correct. Print a PCL Emulation Front Panel Test Page. If you're able to print the test page, check your PCL Emulation Front Panel settings and the MS-DOS application's print settings.
	The Windows Printing System may be incorrectly installed	Reinstall the Windows Printing System software and try printing the test pages.
The paper is not fed into the printer.	Paper has not been inserted correctly	Insert the paper correctly.
	Too much paper in the multipurpose paper tray	Remove some of the paper from the multipurpose paper tray.
Printer prints out blank pages.	The developer cartridge is not installed properly.	Install the developer cartridge properly.
	Imaging cartridge is empty	Replace the imaging cartridge.
Half of the page is blank	Page layout is too complex	Simplify the page layout and remove any unnecessary formatting commands from the document if possible.
		Reduce the resolution setting. If it is currently 600 dpi, reduce it to 300 dpi.
		Install more random-access memory (RAM) in your computer.
	Page orientation setting may be incorrect	Change the page orientation in the Printer Setup dialog box.
	There may be too many applications open	Try closing all other applications before printing.
		Reduce the resolution setting. If it is currently 600 dpi, reduce it to 300 dpi.
		Install more random-access memory in your computer.
	The paper in the printer may be larger than the paper size specified in your application or the Windows Printing System	Insert the correct paper into the printer.
	Scaling may be set to less than 100%	Change the "Scaling" setting in the Printer Setup dialog box.
CPU specifications may be incorrect	Check that the CPU meets the required specifications.	
Computer may have insufficient random-access memory (RAM)	Install more random-access memory in your computer.	
The printer prints the wrong data, or it prints incorrect characters.	Interface cable might not be connected properly	Check the interface cable connection.
	There may be a problem with the Windows Printing System software	Exit Windows and then reboot the computer.
		Turn the printer off and then back on again.

Problem	Possible Cause	Remedy
The paper keeps jamming.	Too much paper in the multipurpose paper tray	Remove some of the paper from the multipurpose paper tray. If printing onto envelopes, transparencies or labels, insert them one at a time.
	Incorrect type of paper is being used	Use only paper that meets the specifications required by the printer.
	Incorrect output method used	Items such as thick paper should not be printed using the normal face-down method. Use the face-up method instead.
	Paper setting method may be incorrect	If printing onto envelopes, insert the envelopes so that there is a gap of approximately 1 mm ( $\frac{1}{32}$ " ) between the left edge of the envelopes and the paper guide.
	The photoconductor cartridge is not installed properly.	Install the photoconductor cartridge properly.
Printing is too slow	If using Windows 3.1 or Windows for Workgroups 3.1x: Print Manager may be disabled	Double-click the <b>Print Manager</b> icon in Control Panel and check the <b>Use Print Manager</b> box.
	If using Windows 3.1 or Windows for Workgroups 3.1x: The background Printing item in the Option menu of Print Manager may be set incorrectly.	Select <b>Background Printing</b> from the <b>Option</b> menu in the Print Manager.
	If using Windows 95: The Spooling Setting may be set incorrectly.	Point to <b>Setting</b> in the <b>Start</b> task bar, and then click <b>Printer</b> . Click the <b>FO-2850</b> icon with the right mouse button, click <b>Properties</b> , and then click the <b>Spool Setting</b> button in the <b>Details</b> box. Select the desired spool setting from the choices available.
	Computer may have insufficient random-access memory (RAM)	Try closing all other applications before printing.
		Install more random-access memory (RAM) in your computer. Refer to your Windows documentation for details. If using a RAM disk, reduce the size of your RAM disk, or do not use a RAM disk.
	Print job may be too large	Reduce the resolution setting. If it is currently 600 dpi, reduce it to 300 dpi. If using Windows 3.1 or Windows for Workgroups 3.1x: If "Diffuse Grays" has been selected in the graphics dialog box, change this setting to "Patterned Grays". If using Windows 95: If "Smooth" has been selected in the graphics dialog box, change this setting to "Pattern". Try increasing the size of the swap file.
Printing is too slow	The printer resource store (memory used exclusively by the Windows Printing System) may have been less than 1.5 MB (You can check this by printing out the test page and checking the value for "WPS PRB")	Try closing all other applications before printing.
		Try increasing the size of the swap file. (Refer to <b>Changing the Virtual Memory Settings</b> .)
		Install more random-access memory (RAM) in your computer. Refer to your Windows documentation for details.
Printer Status Window did not open	Printer Status Window display may have been turned off	Make sure the <b>Display Printer Status Window while printing</b> option is selected in the Status Options dialog box.
Status messages do not display properly.	The computer may not have enough system resources available	Minimize the status monitor to an icon. The status monitor will still operate after it has been minimized.
	Computer may have insufficient random-access memory (RAM)	Try closing all other applications before printing. Install more random-access memory (RAM) in your computer. Refer to your Windows documentation for details.

## B. Print Quality Problems

Problem	Probable Cause	Remedy
Irregular faded patches of print  	Paper quality problem	Use only paper that meets the specifications required by the printer.
	Toner may be unevenly distributed	Remove the imaging cartridge and shake it gently to evenly distribute the toner.
	Abnormal main charger, transfer charger, and developing bias voltage	Check the output voltage and replace defective parts.
	Defective contact of main charger, transfer charger, developing bias output pin	Check the contact and clean the electrode contact section.
	Main charger roller defect (dirt, moisture)	Clean the roller. If still defective, replace.
	Transfer charger roller defect (dirt, moisture)	Clean the roller. If still defective, replace.
	Developing roller defect (dirt, moisture)	Clean the roller. If still defective, replace.
	Optical system dirt	Clean the lens and the mirror.
	Optical system defect	Replace the upper frame unit.
	Imaging cartridge defect	Clean the imaging cartridge. If still defective, replace.
Black staining  	Drum cartridge defect	Clean the drum cartridge. If still defective, replace.
	Paper quality problem	Use only paper that meets the specifications required by the printer.
	Imaging cartridge from another SHARP printer has been installed	Always use the same imaging cartridge with the same printer. Using a cartridge that has already been used in another printer may not give satisfactory results.
	Abnormal main charger and developing bias voltage	Check the output voltage, and replace defective parts.
	Defective contact of main charger and developing bias output pins	Check the contact, and clean the electrode contact section.
	Imaging cartridge defect (dirt)	Clean the imaging cartridge. If still defective, replace.
	Main charger roller defect (dirt, moisture)	Clean the roller. If still defective, replace.
Character voids  	Transfer charger roller defect (dirt, moisture)	Clean the roller. If still defective, replace.
	Developing roller defect (dirt, moisture)	Clean the roller. If still defective, replace.
	Paper may be too dry	Try printing with a different batch of paper.
	Imaging cartridge defect	Replace the imaging cartridge.
	Drum cartridge defect	Replace the drum cartridge.
	Transfer charger abnormality	Clean the transfer charger. If still defective, replace.
Background scatter  	Main charger roller defect (dirt, moisture)	Clean the roller. If still defective, replace.
	Transfer charger roller defect (dirt, moisture)	Clean the roller. If still defective, replace.
	Developing roller defect (dirt, moisture)	Clean the roller. If still defective, replace.
	Paper may be too damp	Try printing with a different batch of paper. Do not open packages of paper until necessary so that the paper does not absorb too much moisture from the air.
	Printing over uneven surfaces	If printing onto envelopes, change your printing layout to avoid printing over areas that have overlapping seams on the reverse side.
	Main charger/developing bias voltage abnormality	Check the output voltage, and replace defective parts.
	Defective contact of main charger/developing bias output pin	Check the contact, and clean the electrode contact section.
	Imaging cartridge defect (dirt)	Clean the imaging cartridge. If still defective, replace.
Some characters are missing from the printout  	Drum cartridge defect (cleaning blade defect)	Replace the drum cartridge.
	Developing roller defect (dirt, moisture)	Clean the roller. If still defective, replace.
	Temperature compensation circuit defect	Check the temperature sensor and its peripheral circuit.
	Paper may be too damp	Try printing with a different batch of paper. Do not open packages of paper until necessary so that the paper does not absorb too much moisture from the air.
	Drum may be dirty	Clean the drum.
	Imaging cartridge defect	Replace the imaging cartridge.
Drum cartridge defect (cleaning blade defect)	Replace the drum cartridge.	
	Laser unit defect	Replace the upper frame unit.
	Control PWB defect	Repair the control PWB.
	Main charger roller defect (dirt, moisture)	Clean the roller. If still defective, replace.

Problem	Probable Cause	Remedy
Graphics print is not printed properly. 	Toner is not distributed evenly.	Remove the developer cartridge, shake it horizontally and slowly and distribute toner evenly.
	Toner quantity is small.	The developer cartridge life may be soon exhausted. Prepare a new developer cartridge.
Skewed print	Transfer charger roller defect (dirt, moisture)	Clean the roller. If still defective, replace.
	Developing roller defect (dirt, moisture)	Clean the roller. If still defective, replace.
	Optical system defect	Replace the upper frame unit.
Black streak print (in the paper transport direction)	Imaging cartridge defect	Replace the imaging cartridge.
	Drum cartridge defect (cleaning blade defect)	Replace the drum cartridge.
	Laser unit defect	Replace the upper frame unit.
	Control PWB defect	Repair the control PWB.
	Main charger roller defect (dirt, moisture)	Clean the roller. If still defective, replace.
	Transfer charger roller defect (dirt, moisture)	Clean the roller. If still defective, replace.
	Developing roller defect (dirt, moisture)	Clean the roller. If still defective, replace.
	Optical system dirt	Clean the lens and the mirror.
White streak print (in the paper transport direction)	Imaging cartridge defect	Replace the imaging cartridge.
	Drum cartridge defect (cleaning blade defect)	Replace the drum cartridge.
	Laser unit defect	Replace the upper frame unit.
	Control PWB defect	Repair the control PWB.
	Main charger roller defect (dirt, moisture)	Clean the roller. If still defective, replace.
	Transfer charger roller defect (dirt, moisture)	Clean the roller. If still defective, replace.
	Developing roller defect (dirt, moisture)	Clean the roller. If still defective, replace.
	Optical system dirt	Clean the lens and the mirror.
Black streak print (vertical to the paper transport direction)	Imaging cartridge defect	Replace the imaging cartridge.
	Drum cartridge defect (cleaning blade defect)	Replace the drum cartridge.
	Laser unit defect	Replace the upper frame unit.
	Control PWB defect	Repair the control PWB.
	Main charger roller defect (dirt, moisture)	Clean the roller. If still defective, replace.
	Transfer charger roller defect (dirt, moisture)	Clean the roller. If still defective, replace.
	Developing roller defect (dirt, moisture)	Clean the roller. If still defective, replace.
	Laser unit defect	Replace the upper frame unit.
White streak print (vertical to the paper transport direction)	Imaging cartridge defect	Replace the imaging cartridge.
	Drum cartridge defect (cleaning blade defect)	Replace the drum cartridge.
	Laser unit defect	Replace the upper frame unit.
	Control PWB defect	Repair the control PWB.
	Main charger roller defect (dirt, moisture)	Clean the roller. If still defective, replace.
	Transfer charger roller defect (dirt, moisture)	Clean the roller. If still defective, replace.
	Developing roller defect (dirt, moisture)	Clean the roller. If still defective, replace.
	Optical system dirt	Clean the lens and the mirror.
Defective fusing	Low fusing temperature	Check the temperature sensor and its peripheral circuit. Replace the thermistor. Replace the heater lamp. Check the heater lamp drive circuit.
	Low fusing pressure	Replace the pressure pad. Clean the fusing section.
Overlapped print (The previous print image is overlapped on the print.)	Envelopes or thick paper is used.	Insert paper to the paper feed tray one by one to perform printing.
	Paper is dry.	Replace with paper which is not too dry.
The back of print surface is dirty.	The paper feed roller is dirty.	Clean the roller. (Print with white paper several times to clean the roller.)

Problem	Probable Cause	Remedy
Automatic resolution reduction function has operated.	Insufficient memory to run the Windows Printing System	Try closing all other applications before printing.
		If using a RAM disk, reduce the size of your RAM disk, or do not use a RAM disk.
		Install more random-access memory in your computer. Refer to your Windows documentation for details.
	Print job may be too large	Reduce the resolution setting. If it is currently 600 dpi, reduce it to 300 dpi. Refer to your Windows documentation for details.
If using Windows 3.1 or Windows for Workgroups 3.1x: If "Diffuse Grays" has been selected in the graphics dialog box, change this setting to "Patterned Grays". If using Windows 95: If "Smooth" has been selected in the graphics dialog box, change this setting to "Pattern".		
Try increasing the size of the swap file. ( <b><i>Changing the Virtual Memory Settings</i></b> )		
Gray images do not print properly	Graphics options may be set incorrectly	Check the Grayscale - Halftoning setting for graphics in the Windows Printing System.
Text shown in color on screen does not print in black	Grayscale - Halftoning setting may not be the optimum setting for that color	Check the Grayscale - Halftoning setting for graphics in the Windows Printing System.
Document prints with different fonts	TrueType fonts may be disabled	Use the <b>Fonts</b> dialog box in the Control Panel window to enable TrueType fonts

### 3. Troubleshooting 2

This troubleshooting manual is based on actual examples to help you solve various troubles.

Please use this manual together with the Service Manual.

This troubleshooting describes the following items.

#### A. Mechanism section trouble

(1) Abnormal sounds	11-7
(2) Paper Jam	11-8
(3) Paper skew	11-9
(4) Paper empty is not detected.	11-10
(5) The drum cartridge cannot be removed. The imaging cartridge	11-10
(6) There are fluctuations in top loss	11-10
(7) Left margin shift	11-10
(8) Serviceman call error 3	11-10

#### B. Print trouble

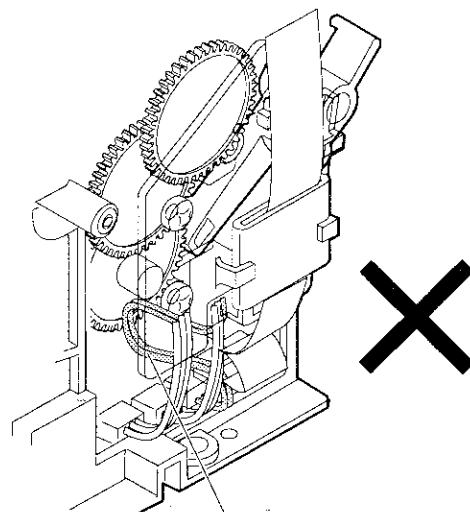
(1) White streak, black streak	11-11
(2) Faint and patchy characters	11-14
(3) Totally black print	11-14
(4) One-sided exposure	11-15
(5) Banding	11-15
(6) Ghost	11-16
(7) Irregular density	11-17
(8) Defective following	11-18
(9) Defective fusing	11-19
(10) Print difference between right and left	11-19
(11) Skew print	11-19
(12) Streaks in 3mm pitch	11-20
(13) Streaks or dots in 45mm pitch	11-20
(14) Streaks or dots in 78mm pitch	11-20
(15) Resolution is insufficient.	11-20
(16) Blurs in print	11-21
(17) Dirt on the lead edge, both edges, the back surface	11-21
(18) Dirt by disturbance light	11-21

#### A. Mechanism section trouble

##### (1) Abnormal sounds

###### a. Abnormal sound from the side gear section

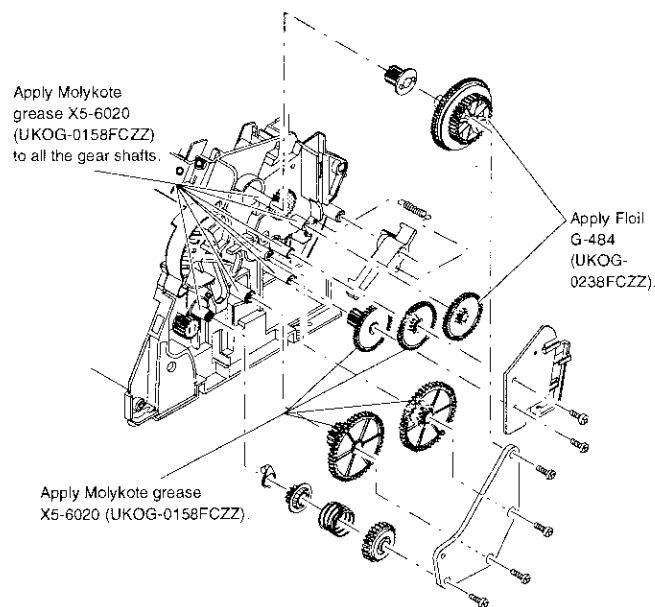
- Check that the cable from the control PWB is not caught by the gear teeth.



If the cable is caught by the gear teeth as shown, move the cable away from the gear.

[Fig. 1]

- Apply grease again. For greasing each gear, refer to the figure below.



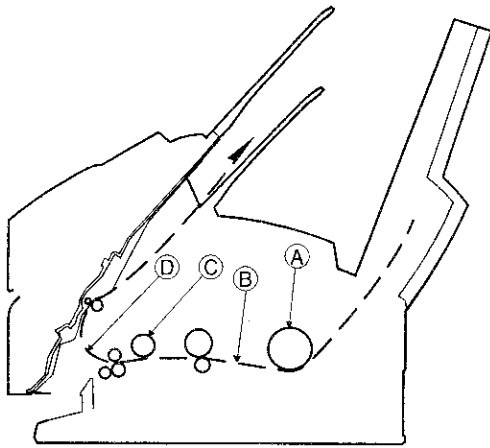
[Fig. 2]

- Replace all the gears.
- b. Abnormal sound from the main motor.**
- Replace the main motor.
- c. Abnormal sound from the mirror motor.**
- Replace the upper frame unit.



**(2) Paper jam**

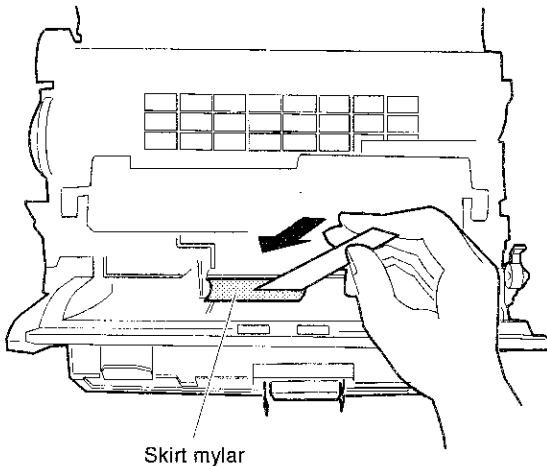
Paper jam is most possibly caused by the paper feed clutch trouble.  
Check the position of paper jam at first.



[Fig. 3]

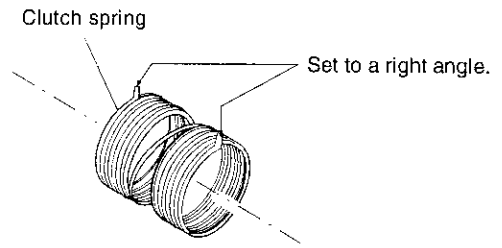
a. When there is a paper jam at (A) (without paper feed) shown in Fig. 3:

- The paper is released.  
→ Set the paper.
- The paper slips the paper feed roller.  
→ Clean the paper feed roller with absolute alcohol.
- The skirt mylar is turned up.  
→ Return the skirt mylar to the original state.



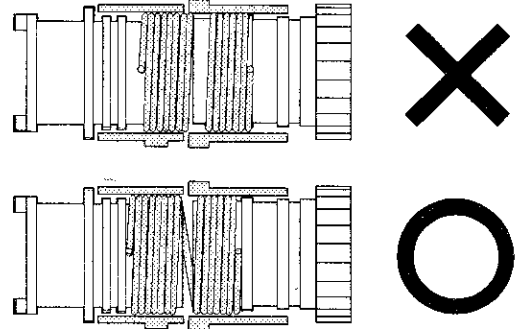
[Fig. 4]

- Paper feed clutch trouble  
→ Refer to B.
- b. When there is a paper jam in (B) (paper transport section) shown in Fig. 3:
- The paper slips the paper feed roller.  
→ Clean the paper feed roller with absolute alcohol.
  - Check if the clutch spring bent section is deformed or not.  
→ Set the bent section so that it is at a right angle.



[Fig. 5]

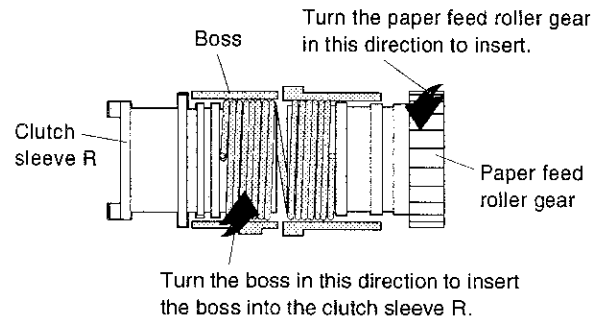
- Clutch spring installation trouble  
→ Reinstall it properly, referring to Fig. 6 below.



[Fig. 6]

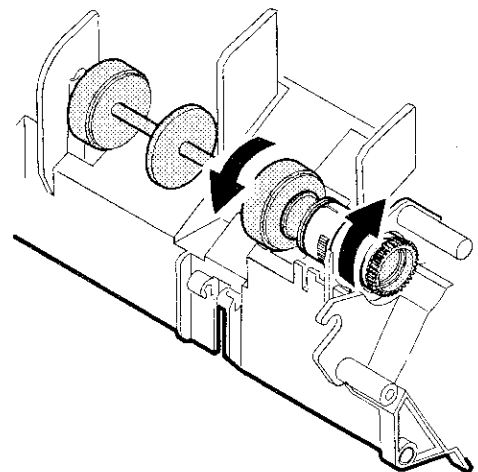
(Reference)

- I. When assembling the paper feed clutch, turn each section to insert it smoothly as shown in Fig. 6.



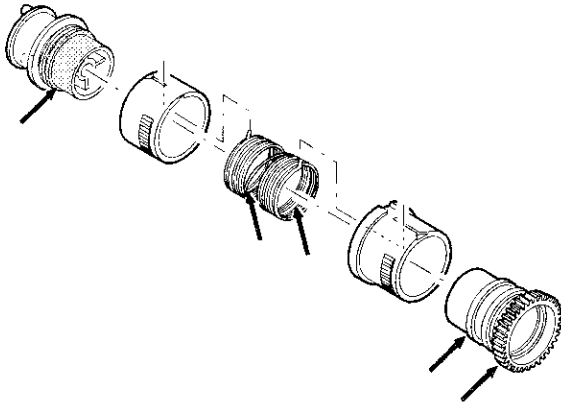
[Fig. 7]

- II. To check for the clutch spring installation abnormality, turn the paper feed roller and the paper feed roller gear as shown in Fig. 8. If they are rotated freely, they are O.K.



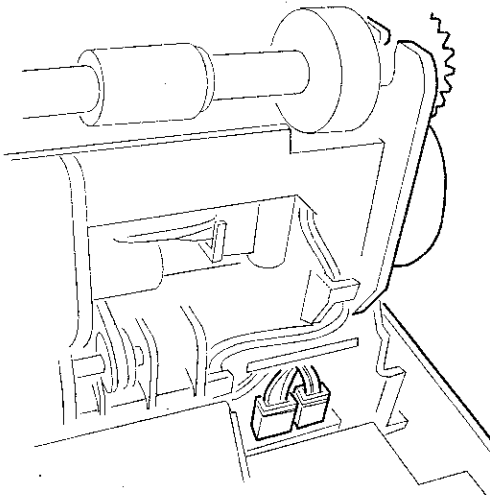
[Fig. 8]

- Grease the paper feed clutch section.  
→ Apply Molykote grease X5-6020 [Parts Code: UKOG-0158FCZZ, Price Rank: AU]  
Apply grease to the position shown with ➡.



[Fig. 9]

- c. When there is a paper jam in (C) (fusing section) in Fig. 3:
  - The fusing sheet nearly comes off.  
→ Attach a new fusing sheet.
  - The pressure sponge is deformed.  
→ Replace the pressure sponge.
- d. There is a paper jam in (D) (face up paper exit section) in Fig. 3:
  - The wire cover sheet in the fusing section is floating to disturb paper transport.  
→ Attach the wire cover sheet properly.



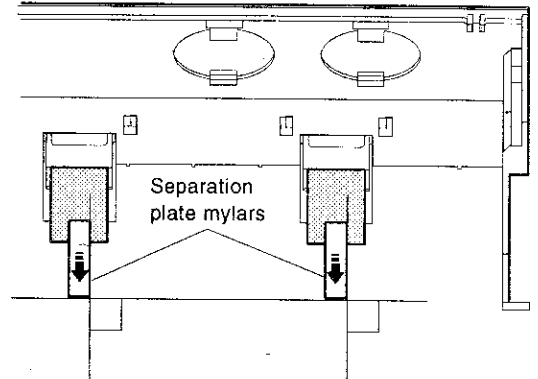
[Fig. 10]

For treatment of the temperature fuse and the thermistor wires, press and hold them with the wire cover sheet and insert the wire cover sheet inside the frame projection. If this procedure is improper, a paper jam may occur.

### (3) Paper skew

Paper skew is most possibly caused by the separation plate/separation sheet. Check that paper is set straight. If paper is not set straight, set properly. If paper skew is still generated, perform the following checks.

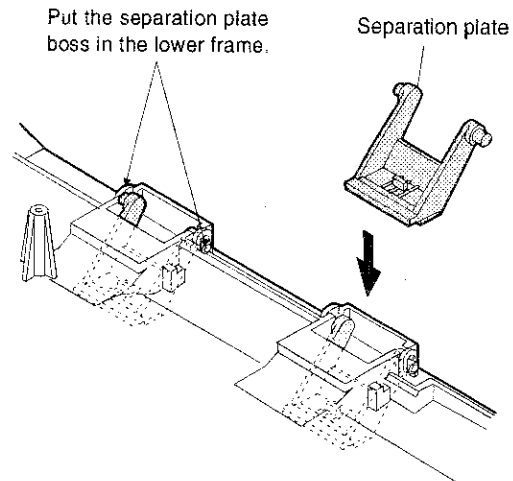
- a. Paper skew caused by the separation plate and the separation sheet.
  - Check if the installing position of the separation plate mylar is shifted.  
→ If the installing position is shifted, set the separation plate mylar as shown in Fig. 11.



Extend the separation mylars completely and straight.

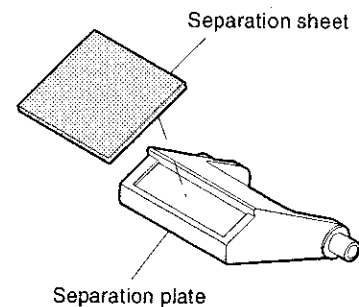
[Fig. 11]

- Check if the separation plate is correctly installed to the lower frame.  
→ If it is shifted, install it correctly.



[Fig. 12]

- Check if the separation sheet is coming off or is floating.  
→ Reattach it properly.



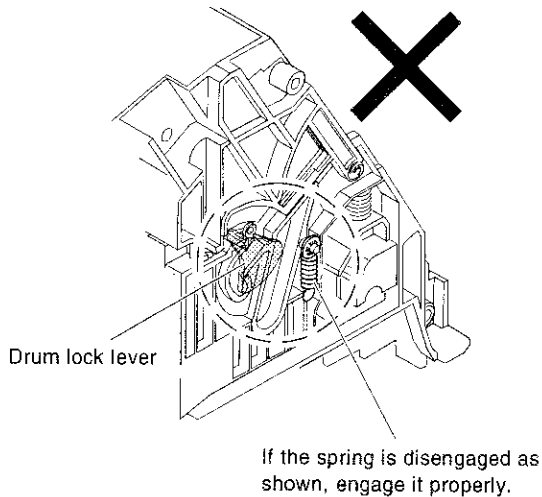
[Fig. 13]

**(4) Paper empty is not detected.**

- The paper empty sensor may not be raised. IN this case, remove the paper empty sensor and check for burrs, and remove burrs if necessary, and attach it to the original position.

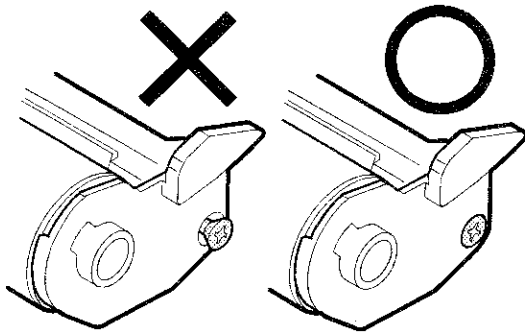
**(5) The drum cartridge cannot be removed. The imaging cartridge cannot be inserted.**

- Check if the drum lock lever springs (one at left, one at right) are disengaged.  
→ Attach the springs.



[Fig. 14]

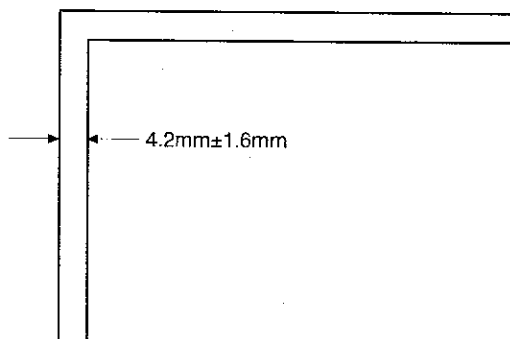
- The drum cartridge screw is not tighten enough so that it is caught.  
→ Tighten the screw completely.



[Fig. 15]

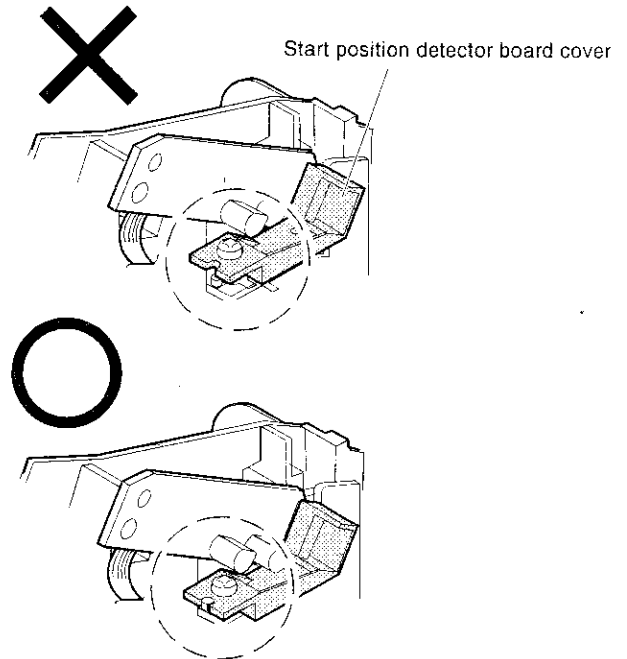
**(6) There are fluctuations in top loss.**

- The paper feed clutch section is disassembled defectively.  
→ Assemble it properly. (Refer to (2) Paper jam.)
- Grease the paper feed clutch section. (Refer to (2) Paper jam.)

**(7) Left margin shift**

[Fig. 16]

- If the left margin is shifted from the value shown in Fig. 16, the start position detector board cover installing position may be shifted. Check that the pin is inserted securely as shown in Fig. 17. Insert it securely if not.



[Fig. 17]

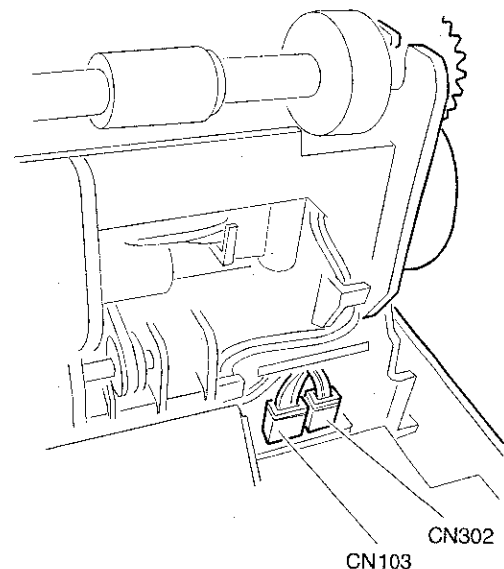
- If the trouble is not cleared by the above procedure, the optical system trouble may be the cause. Replace the upper frame unit.

**(8) Serviceman call error 3 "Low fusing temperature error"**

Check if the heat lamp is lighted or not.

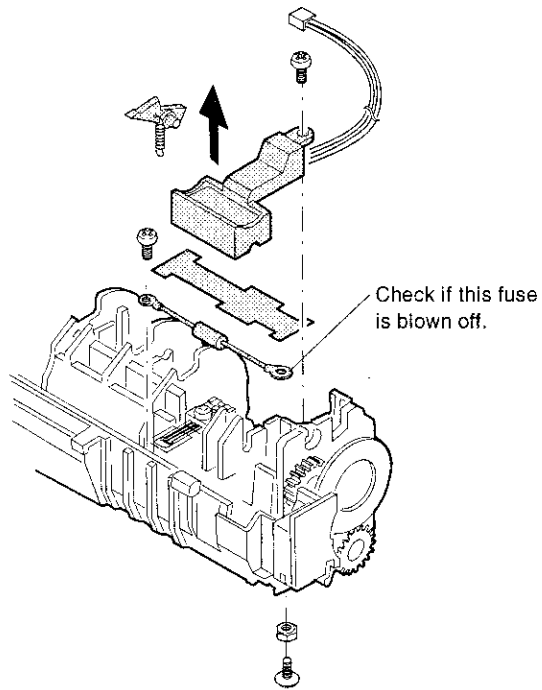
**a. When the heat lamp is lighted:**

- Connector CN103 may be disconnected or connected improperly.  
→ Connect it properly.



[Fig. 18]

- The temperature fuse of "HLL signal" line is blown off.  
→ Replace the fuse.



[Fig. 19]

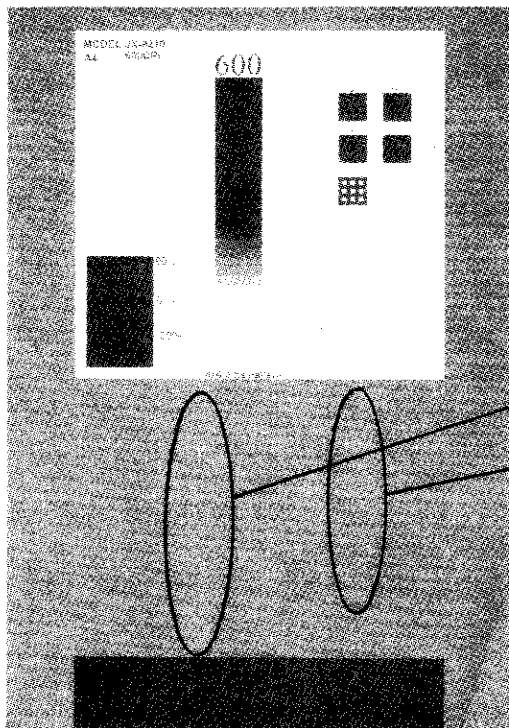
- The heat lamp is broken.  
→ Replace the heat lamp.
- b. When the heat lamp is lighted:**
- Connector CN302 is disconnected or connected improperly.  
→ Connect it properly. (Refer to Fig. 18.)

**B. Print trouble**

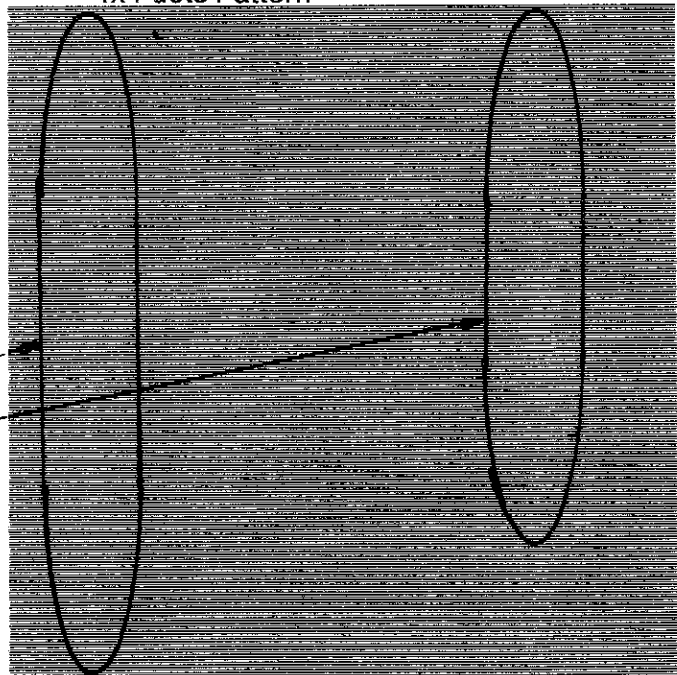
**(1) White streak, black streak**

<example>

(White streak)

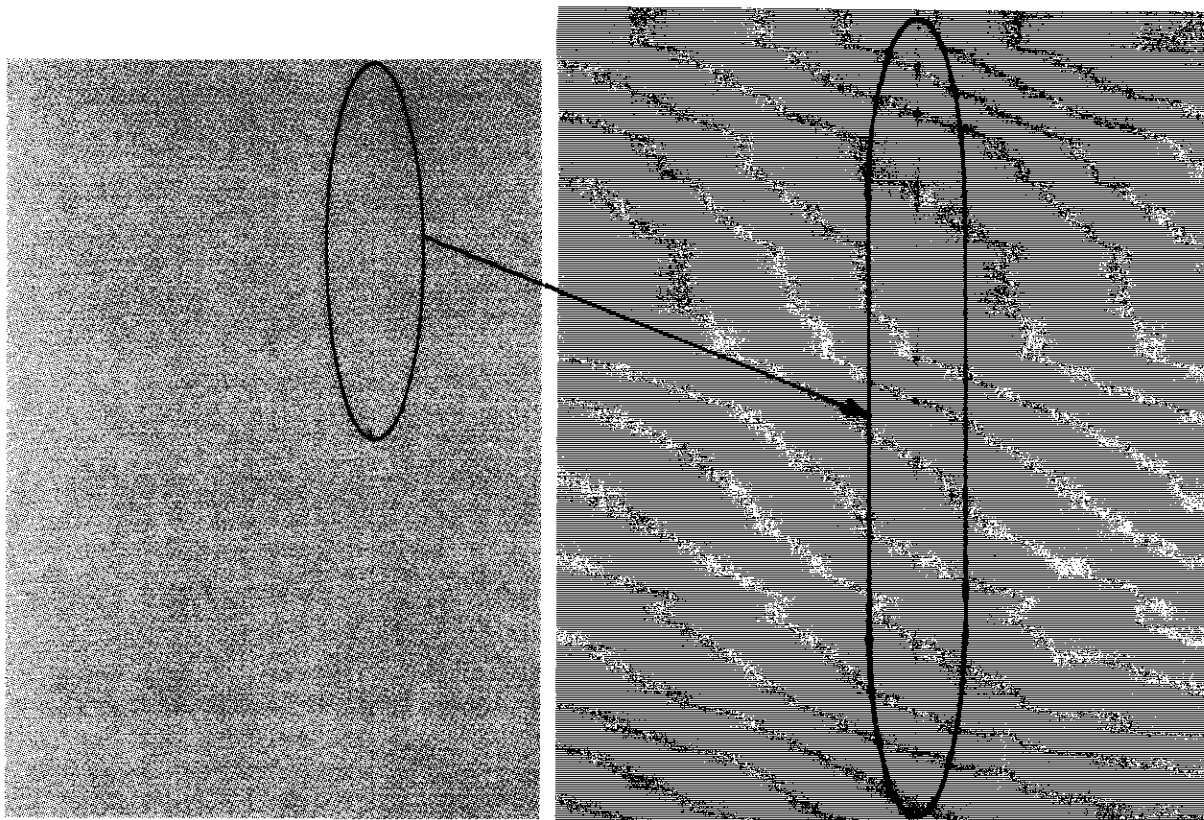


4x4 dots Pattern



[Print example 1. White streak]

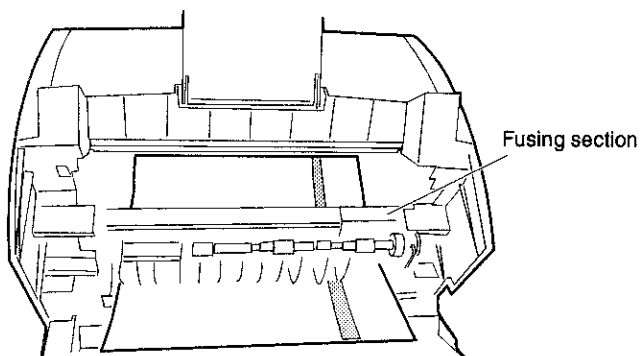
(Black streak)



[Print example 2. Black streak]

- White streak and black streak may be most possibly caused by the optical system or the fusing section. Check as follows to identify the trouble section (the fusing section or the optical system).

① Start printing and open the front cover halfway to stop printing.



[Fig. 20]

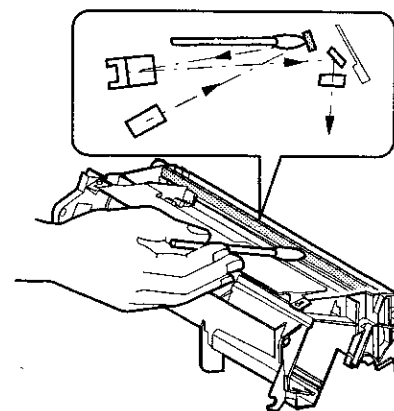
② Check that streak is generated in before the fusing section (from the transfer roller to the fusing section).

**a. When streak is generated before the fusing section:**

- The second cycle lens and mirrors are dirtied (by adhesion of foreign material). It may be the most possible cause. Clean the sections as follows with absolute alcohol.

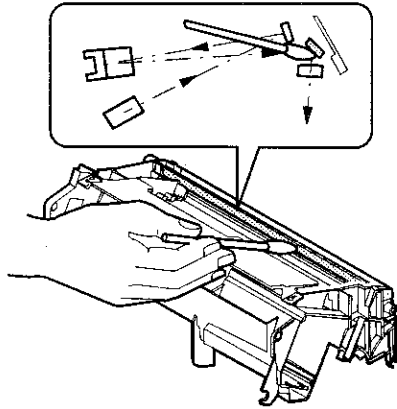
**(Cleaning the optical section)**

- ① Remove the toner cartridge and the drum cartridge, then remove the front cabinet and the front cabinet and the rear cabinet.
- ② First reflection mirror: Without shifting the first reflection mirror and the other mirrors and lenses, clean the surface of the first reflection mirror with a cotton ball and lens cleaner liquid for cameras.



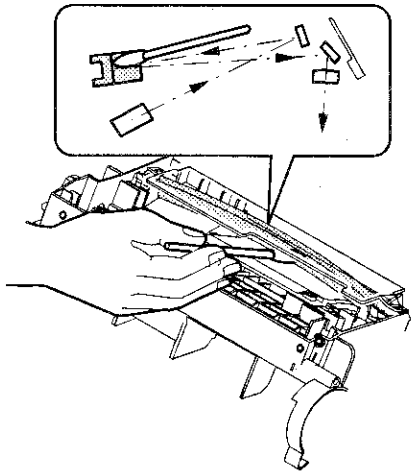
[Fig. 21]

- ③ Third reflection mirror: Without shifting the second reflection mirror and the other mirrors and lenses, clean the surface of the second reflection mirror with a cotton ball and lens cleaner liquid for cameras.



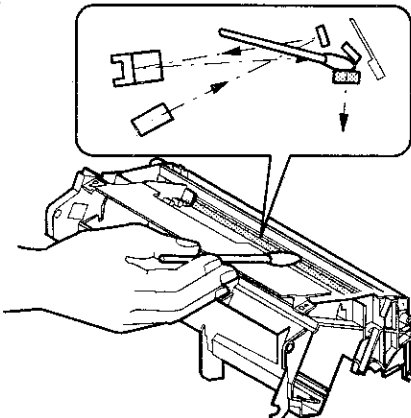
[Fig. 22]

- ④ Second reflection mirror (Curved mirror): Without shifting the curved mirror and the other mirrors and lenses, clean the surface of the curved mirror with a cotton ball and lens cleaner liquid for cameras.

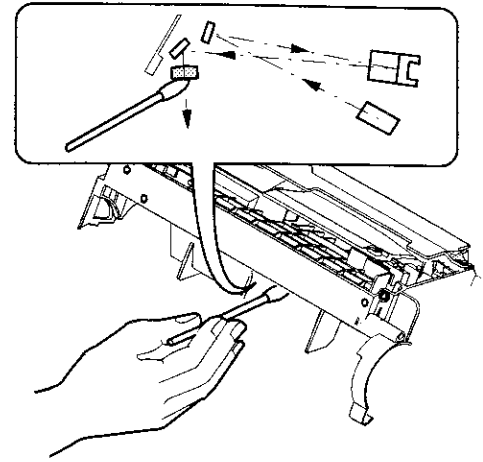


[Fig. 23]

- ⑤ Second cylinder lens: Without shifting the second cylinder lens and the other mirrors and lenses, clean the second cylinder lens with a cotton ball and lens cleaner liquid for cameras. In this case, be sure to clean the top surface and the bottom surface of the second cylinder lens.



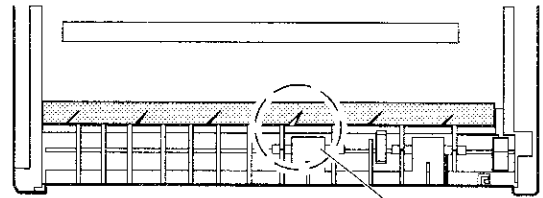
[Fig. 24]



[Fig. 25]

Note: When cleaning the optical section, to use lens cleaner liquid for cameras. If lens cleaner liquid for cameras is not available, use absolute alcohol.

- Clean the paper feed roller, the separation sheet, the transfer roller and inside, and the photoconductor.
- b. When streak is generated after the fusing section:**
  - Clean the fusing section (heat roller, thermistor, teflon sheet) with absolute alcohol.
  - Check for floating or deformation (excessive opening of the cut) of the teflon sheet.
    - Replace it if necessary.



If the cut section is too open, it is no good.

[Fig. 26]

- Clean the fusing follower roller with absolute alcohol.
- Clean the paper exit roller with absolute alcohol.

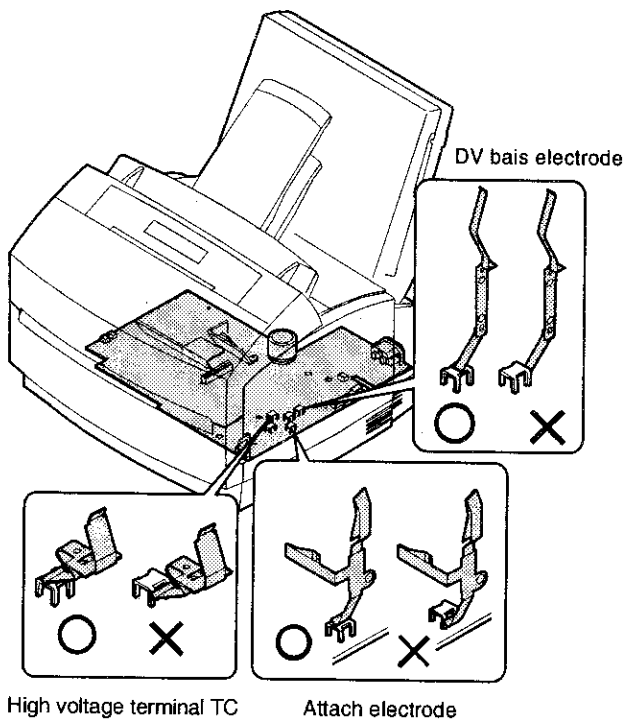
**(2) Faint and patchy characters**

&lt;example&gt;

**[Print example 3. Faint and patchy characters]**

- Faint and patchy characters may be most possibly caused by improper contact of the high voltage terminal TC, the DV bias electrode, and the attach electrode. Check that the terminals are properly on the aluminum base of the control PWB as shown in Fig. 27.

→ If not, form each terminal manually and place it on the aluminum base properly.

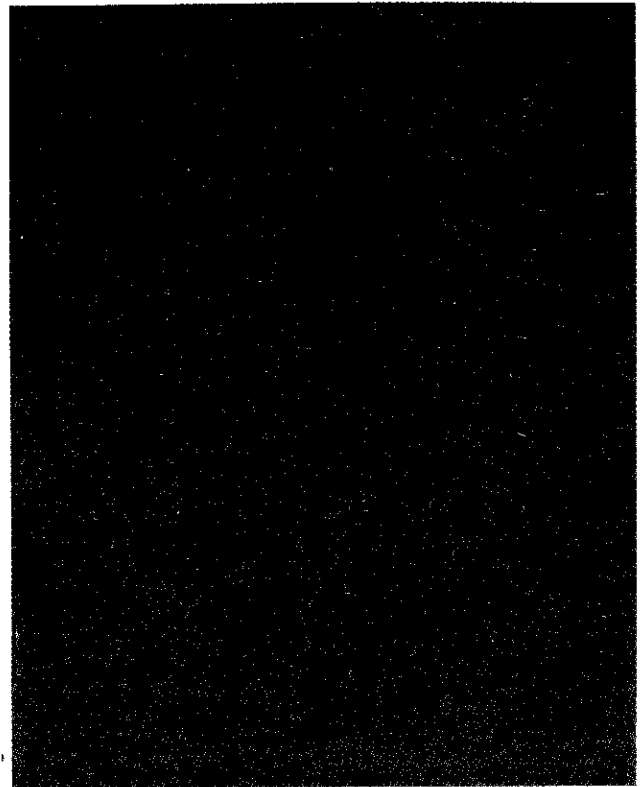
**[Fig. 27]**

- When the above terminals are in poor contact, the back surface of print paper may be dirtied by toner. Check the back surface of print paper. If it is not dirtied, the control PWB may be defective.

→ Replace the control PWB.

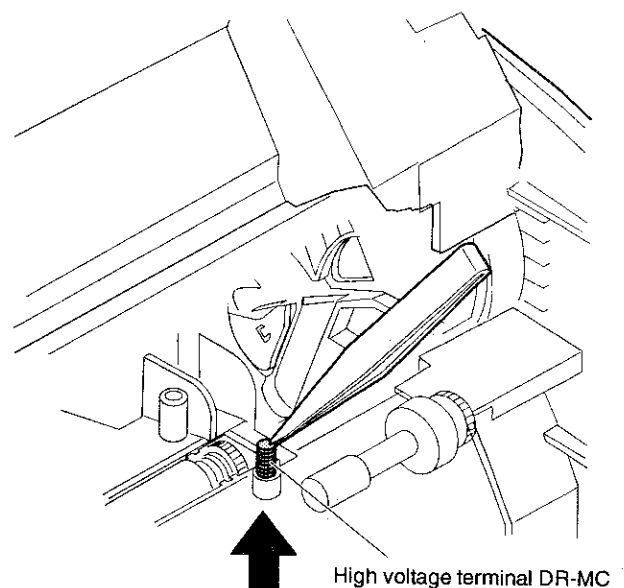
**(3) Totally black print**

&lt;Print example&gt;

**[Print example 4. Totally black print]**

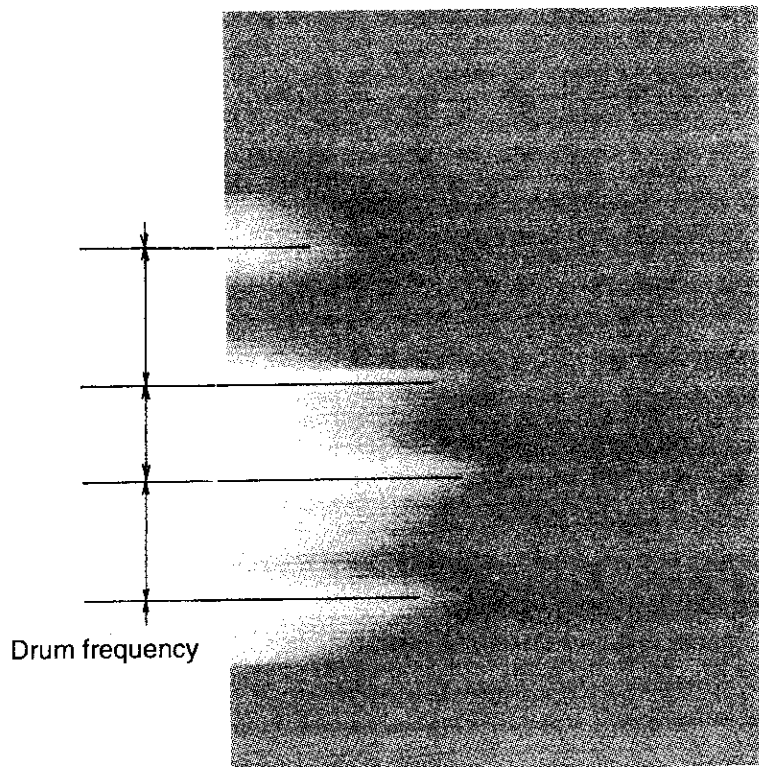
- When a totally black print is generated, the high voltage terminal DR-MC may not be raised enough and the main charger may be in proper contact with the charger roller.

In this case, raise the high voltage terminal DR-MC as shown in Fig. 28 so that the high voltage terminal DR-M is properly in contact with the drum cartridge.

**[Fig. 28]**

**(4) One-sided exposure**

&lt;Print example&gt;

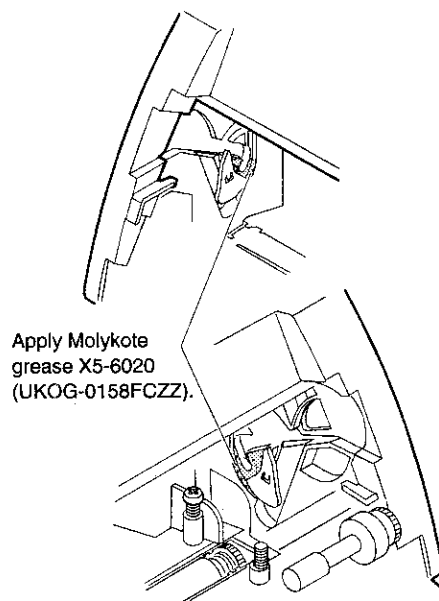
**[Print example 5. One-sided exposure]**

One-sided exposure may be most possibly caused by floating of the imaging cartridge. In this case, missing of print occurs in synchronization with the drum frequency. Check as follows.

- Grease the drum lock lever.

Grease: Molykote grease X5-6020

[Part code: UKOG-0158FCZZ, Price rank: AU]



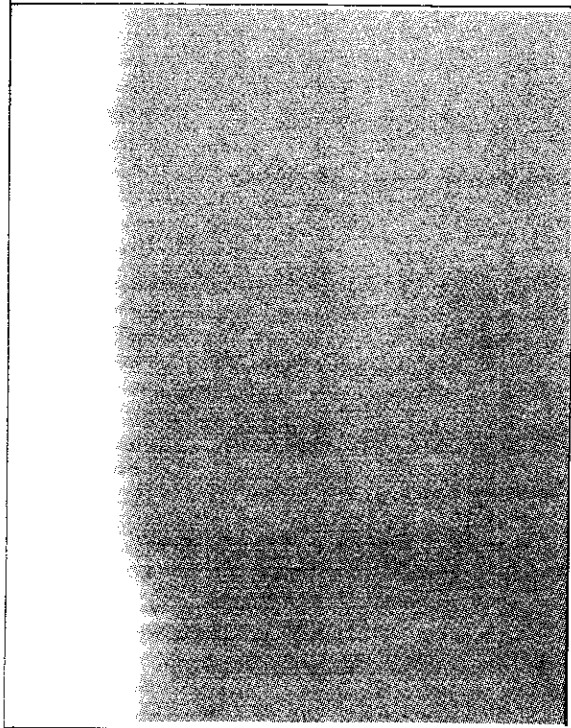
**[Fig. 29]**

- Open and close the front cover unit repeatedly.



**(5) One-sided print**

<example>



**[Print example 6. One-sided print]**

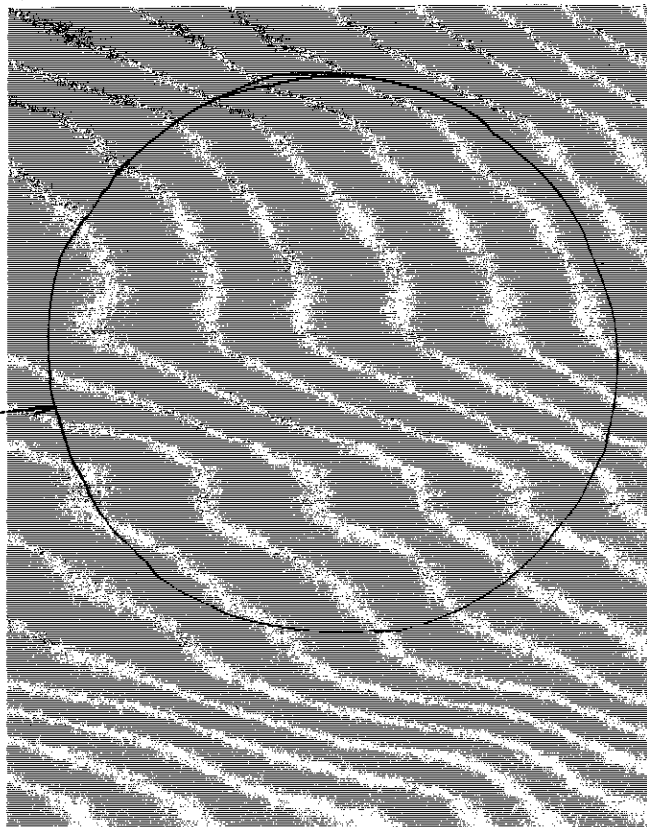
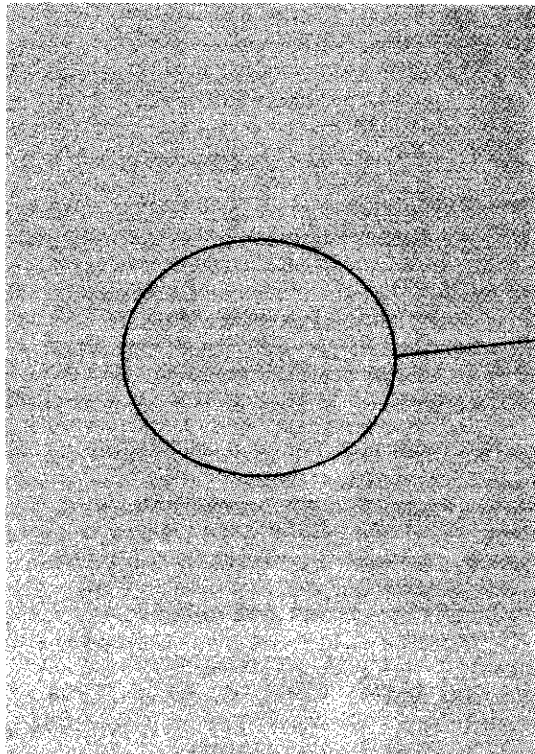
Print data may not be reflected by the mirror to cause the above defective print.

That is, the optical path system may be defective. While one-sided exposure is generated in synchronization with the drum frequency as shown in Print example 5, one-side print has no frequency of generation and one side is not print completely.

- When this trouble occurs, replace the upper frame unit.

**(6) Banding**

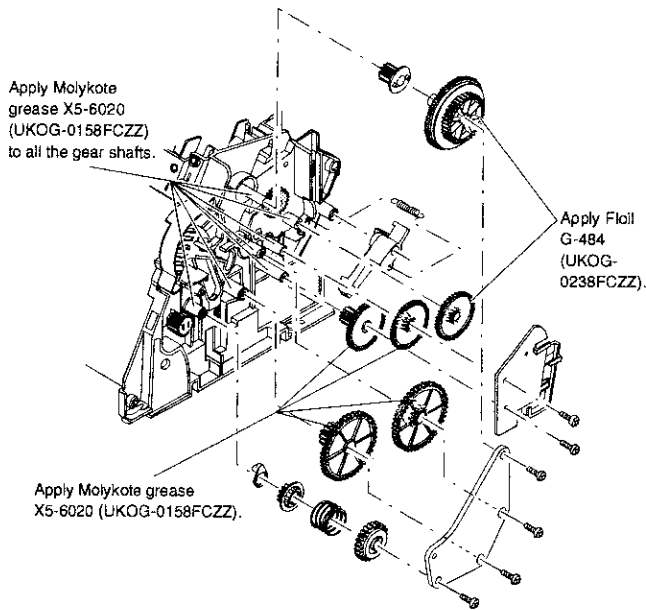
<example>



**[Print example 7. Banding]**

Banding is most possibly caused by irregular feed of drum cartridge and the imaging cartridge.

- Grease the side gear section, referring to Fig. 30.

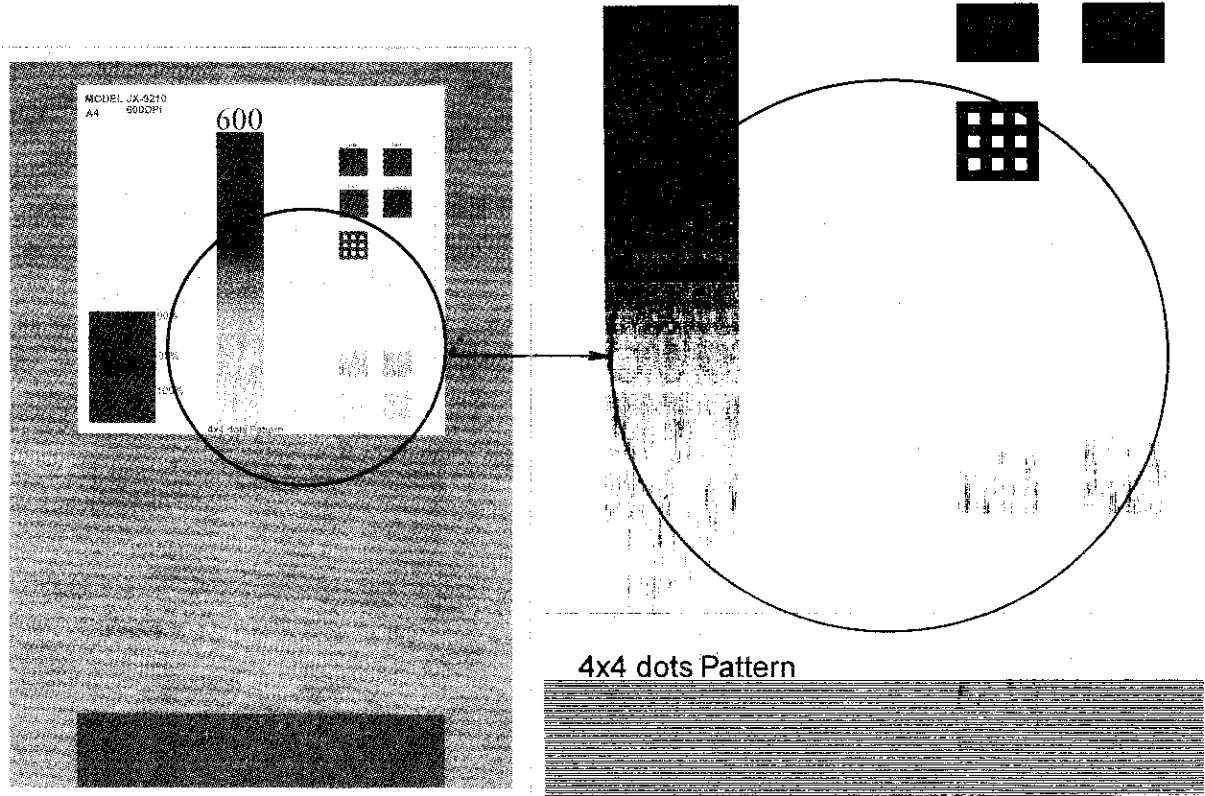


[Fig. 30]

Note: Be careful not to apply grease to the fan belt.

**(7) Ghost**

<example>



[Print example 8. Ghost]

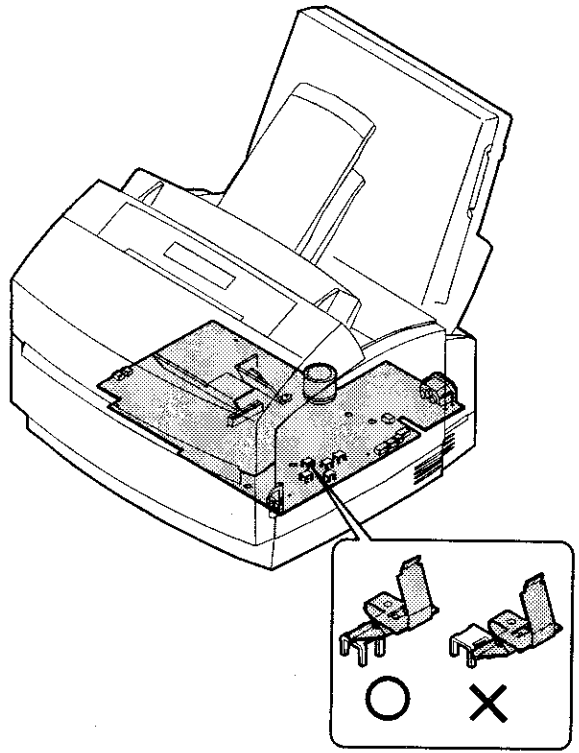
Strong ghost and faint ghost are caused by different causes.

- Strong ghost may be caused by improper contact of the high voltage terminal TC. Check that the terminal is properly placed on the aluminum base of the control PWB as shown in Fig. 31.  
→ If it is not placed properly, from it manually and place properly.

In this case, the back surface is tend to be dirtied by toner. Check the back surface. If it is not dirtied, the control PWB may be defective.

→ Replace the control PWB.

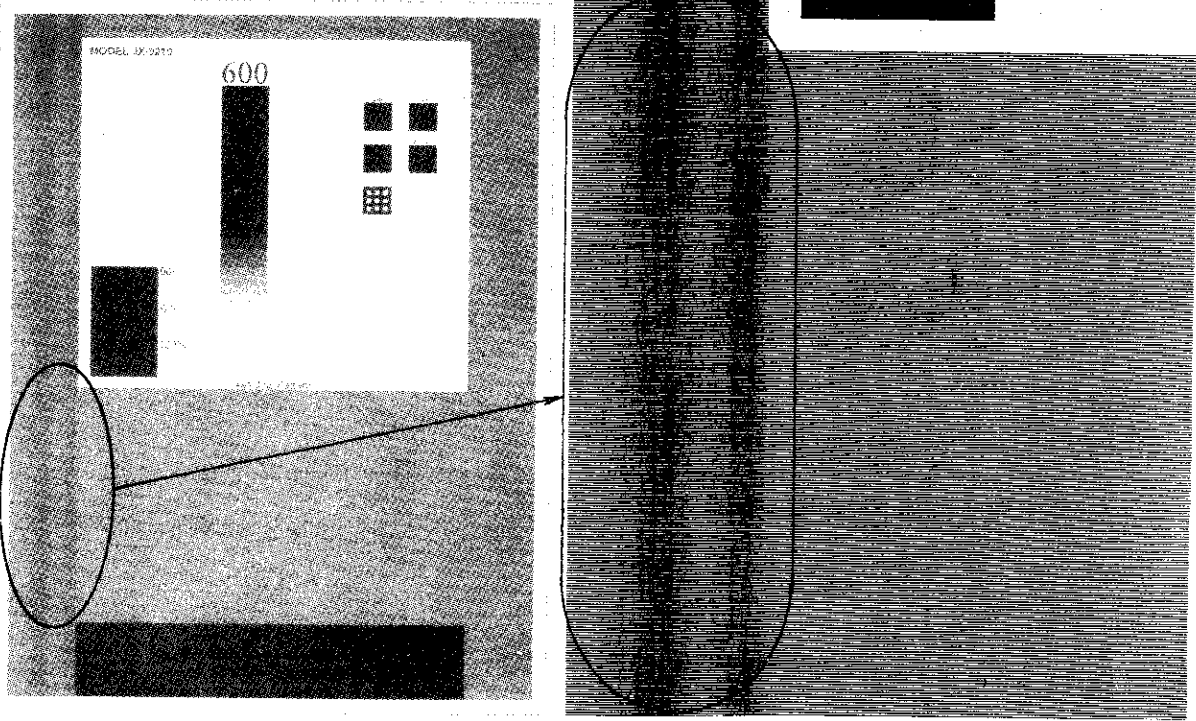
- Faint ghost may be caused by lowered charging capacity of the drum because of exposure under the sunlight.  
→ Replace the drum in this case.



[Fig. 31]

**(8) Irregular density**

<Print example>

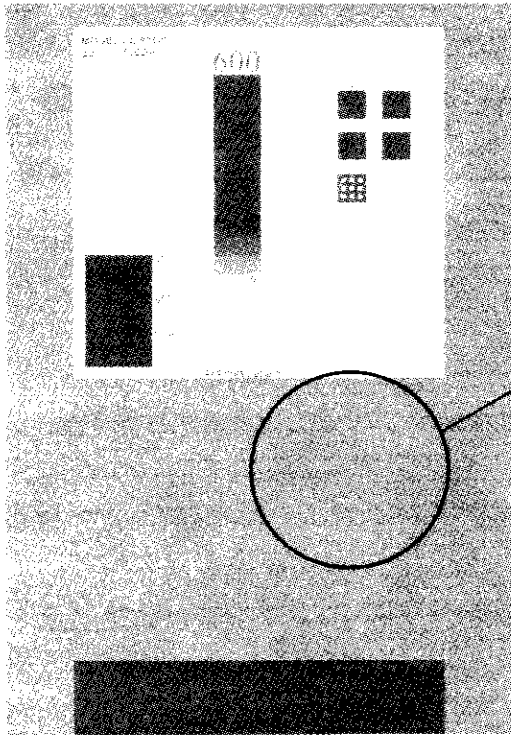


[Print example 9. Irregular density]

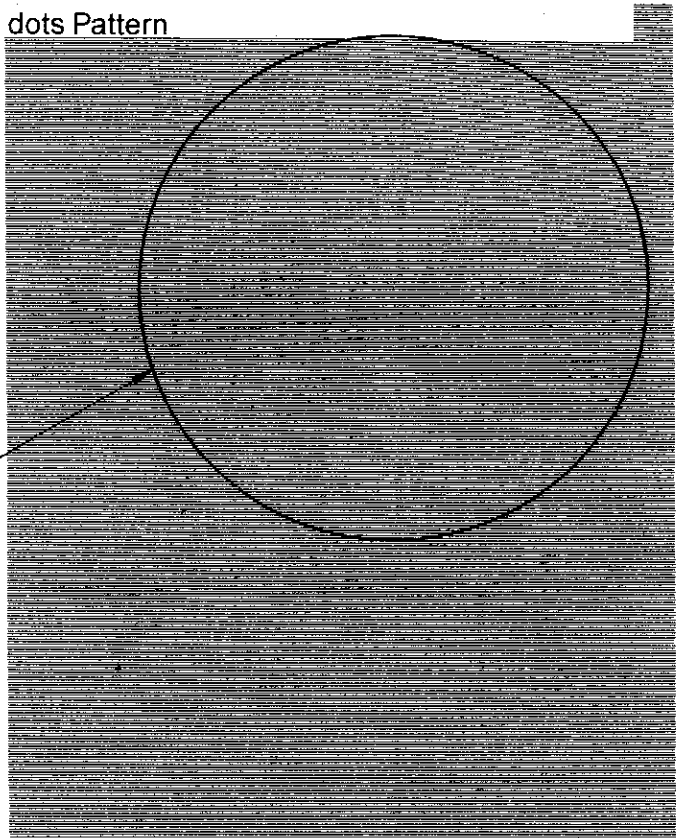
- Irregular density is most possibly caused by dirt on the optical system. Refer to the former section (Cleaning the optical section) and clean the optical section. If the trouble is still generated, replace the upper frame unit.

**(9) Defective following**

<example>



dots Pattern

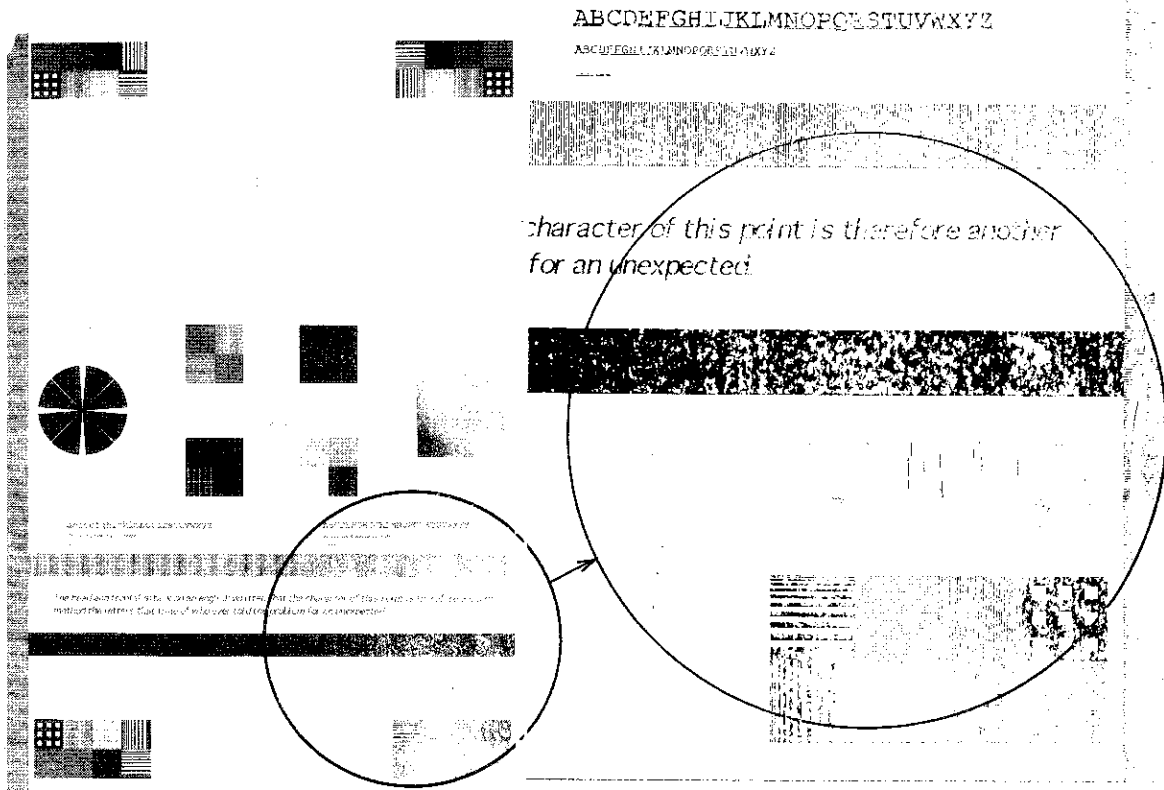


**[Print example 10. Defective following]**

- Defective following is caused as follows. Toner follows to generate black streaks. These streaks may disappear halfway. In this case, clean the drum cartridge and the imaging cartridge with absolute alcohol and check prints again. If the trouble is still generated, the drum cartridge life may be exhausted or it may be scratched or the imaging cartridge is defective. Replace them.

**(10) Defective fusing**

<example>

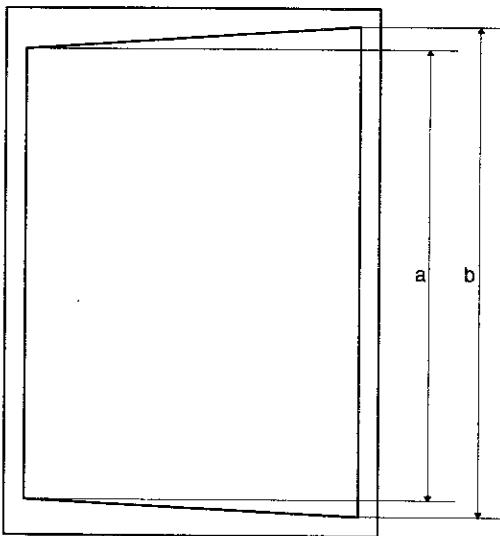


[Print example 11. Defective fusing]

- Heat roller defect → Replace it.
- Teflon sheet defect → Replace it.
- Heater lamp defect → Replace it.

**(11) Print difference between right and left**

<example>

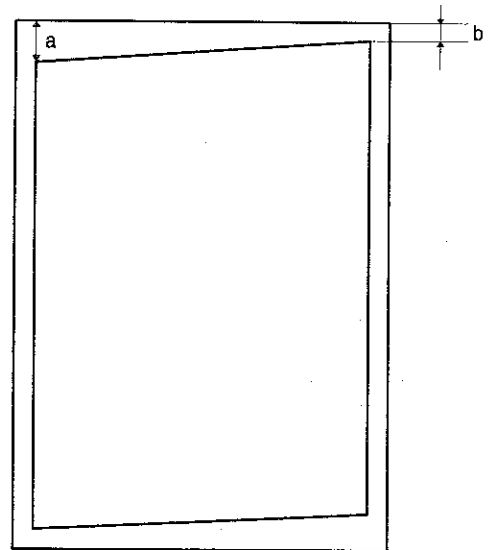


[Print example 12. Print difference between right and left]

- When a frame almost as large as the printable area is printed, if the difference between a and b exceeds 1.5mm, it is defective. (There is no paper skew.)  
→ Replace the transfer roller and the TR spring L together.

**(12) Skew print**

<example>

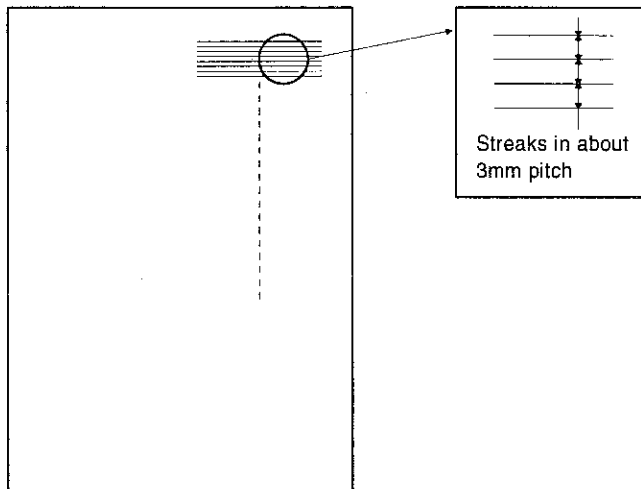


[Print example 13. Skew print]

- When a frame almost as large as the printable area is printed, if the difference between a and b exceeds 0.8mm, it is defective. (There is no paper skew.)  
→ Replace the upper frame unit.

**(13) Streaks in 3mm pitch**

<example>



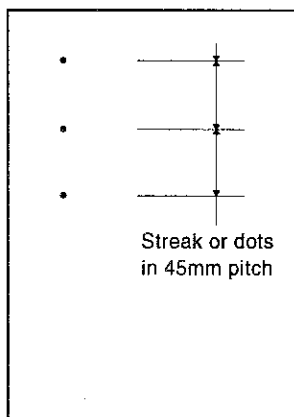
**[Print example 14. Streaks in 3mm pitch]**

This is caused by the side gear trouble. Check the following items.

- Grease the side gear. → Refer to Fig. 29.
- Defective engagement of the side gear
  - If there is any deformed gear, replace it. If the defective gear cannot be identified, replace them all.

**(14) Streaks or dots in 45mm pitch**

<example>



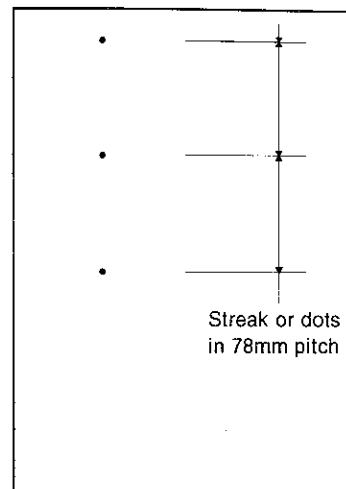
**[Print example 15. Streaks or dots in 45mm pitch]**

45mm pitch is caused by the fusing roller rotation frequency (one rotation). The causes differ depending on streaks or dots.

- In the case of streaks, it may be caused by the fusing roller gear deformation or by intrusion of foreign matter.
  - Clean the fusing gear, grease it. Replace the fusing gear.
- In the case of dots, it may be caused by scratches on the heat roller or dust on it.
  - Clean the heat roller with absolute alcohol. Replace the heat roller.

**(15) Streaks or dots in 78mm pitch**

<example>



**[Print example 16. Streaks or dots in 78mm pitch]**

78mm pitch is caused by the drum rotating frequency (one rotation). The causes differ depending on streaks or dots.

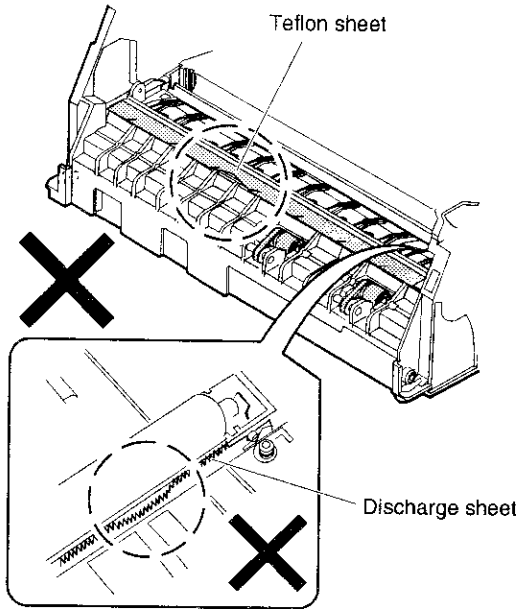
- In the case of streaks, it may be caused by some troubles in the drum gear.
  - Clean the drum gear, grease it. Replace the drum cartridge.
- In the case of dots, it may be caused by scratches or dust on the photoconductor. Roller of dust on it.
  - Clean the photoconductor with absolute alcohol. Replace the drum.

**(16) Resolution is insufficient.**

- Replace the upper frame unit.

**(17) Blurs in print.**

- The discharging sheet is floating or warped.  
→ Install the discharging sheet properly. Replace the discharging sheet.



[Fig. 32]

- The teflon sheet is floating or coming off.  
→ Check installing state of the pressure sponge. If it is floating, replace the FU plate ass'y. If the teflon sheet is floating or coming off, attach it properly.  
(Shown in Fig. 32)

**(18) Dirt on the lead edge, both edges, the back surface.**

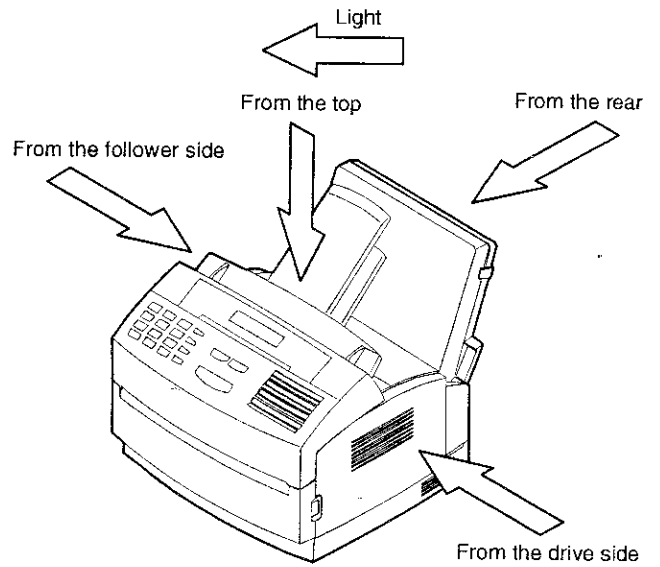
- Clean the transfer roller with absolute alcohol.
- Clean the teflon sheet in the fusing section.

**(19) Dirt by disturbance light**

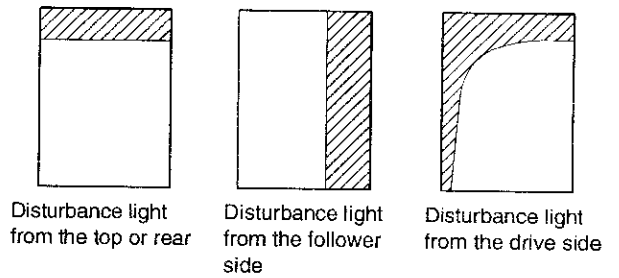
<example>

If the machine is installed by the window or under direct sunlight, the sunlight enters the machine to cause dirt on the print as shown in Print example 17.

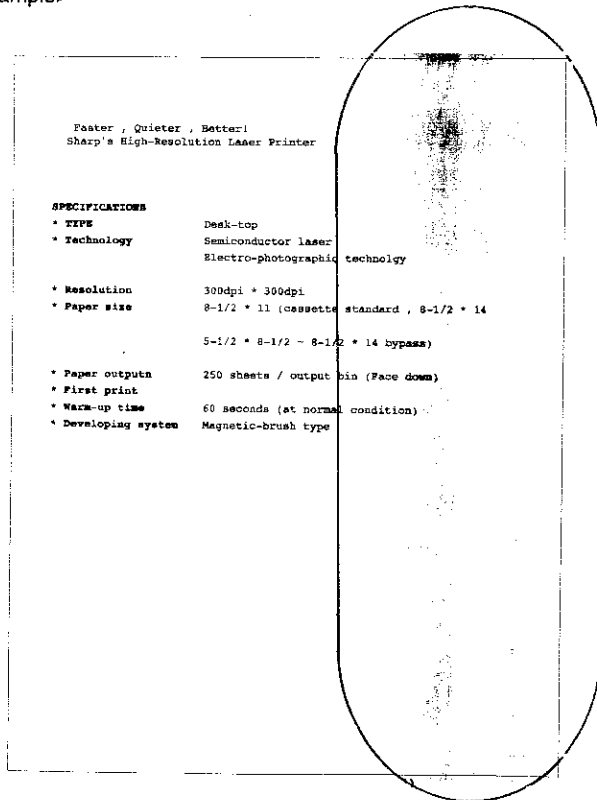
The position of dirt generally depends on the position of disturbance light. Refer to Fig. 33 and move the machine to a suitable place where there is no effect by strong light.



Dirt by disturbance light (▨) : Dirt



[Fig. 33]



← Dirt by disturbance light

[Print example 17: dirt by disturbance light]

## [12] MAINTENANCE

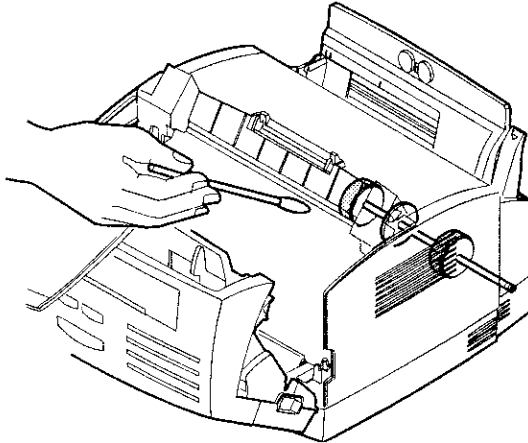
- Clean periodically as follows. Before cleaning, be sure to turn off the power switch.
- For normal dirt, wipe with clean, soft cloth.
- Do not use volatile agent (benzine, thinner, etc.). It may deteriorate the surface or damage the coating.

### 1. Cleaning the paper feed section

In the paper feed section, there are following two positions to be cleaned.

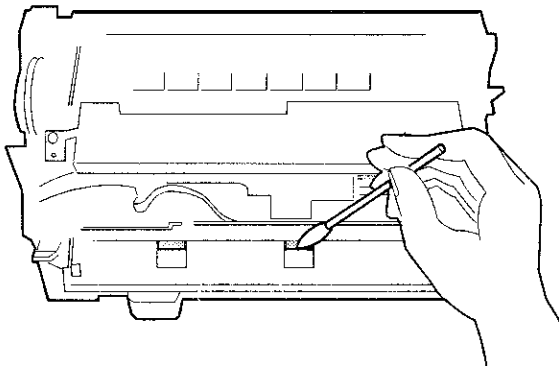
#### A. Paper feed roller

- ① Remove the drum cartridge and the toner cartridge from the main body.
- ② Clean the paper feed roller with absolute alcohol.



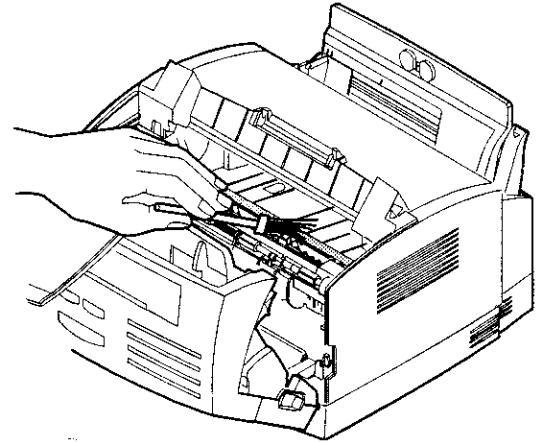
#### B. Separation sheet

- ① Remove the multipurpose tray according to the disassembly procedure.
- ② Clean the separation sheet with absolute alcohol.



### 2. Cleaning the transfer roller and inside

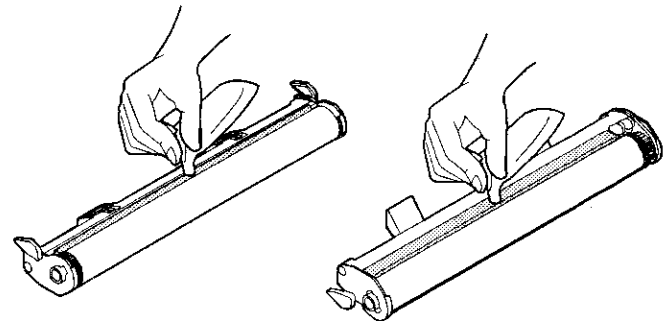
- ① Remove the drum cartridge and the toner cartridge from the main body.



- ② Clean the transfer roller to remove toner and dust with a brush or a vacuum cleaner.
- ③ Clean the printer inside to remove toner and dust with a brush or a vacuum cleaner.

### 3. Cleaning the photoconductor

- ① Remove the toner cartridge.
- ② Remove the drum cartridge.
- ③ Wipe the two sheets of the drum cartridge with a dry cloth.



Note: Be careful not to damage the photoconductor drum.