



impact 1170

Serial Dot Matrix Printer



Service Manual

Introduction

This manual is designed for impact 1170 as a reference for maintenance procedures. It introduces basic operations briefly and describes the disassembly and reassembly of the main parts. It also provides the testing methods and standards for the printer after maintenance. Some necessary measures are recommended for daily maintenance.

Warning

1. Only qualified service personnel are allowed to maintain the printer.
2. All the marks used in this manual are explained as below:



Warnings must be followed to avoid body injury.



Cautions must be observed to avoid damage to the equipment or personnel.



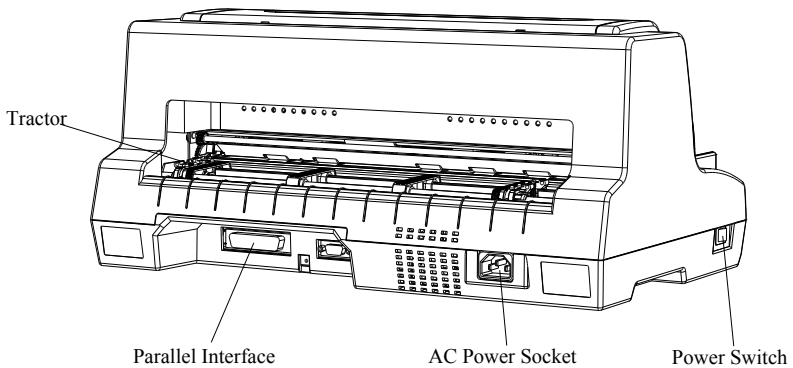
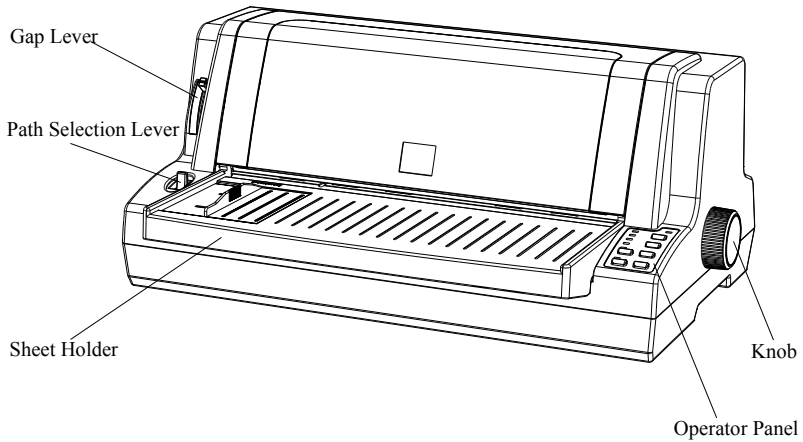
Notes contain important information and useful tips in the box.

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1. Product introduction

1.1 External Appearance and Composition



1.2 Operation

1.2.1 Operator Panel

Buttons

Ready

When the READY indicator is lit, pressing this button causes the temporary stop of the printing job at the end of the current line, the READY indicator is turned off.

When the printing is paused pressing this button will enable the printing and the READY indicator is turned on.

Shift

By holding down this button while pressing another button at the same time, the printer can accomplish the following functions:

Clear buffer (Shift + Ready button)

Clears up data in buffer, and initializes the printer.

Micro adjustment function:

Shift + LOAD/EJECT button

Feed paper forward in 1/180 inch increment.

Shift + LF/FF button

Feed paper forward in 1/180 inch increment.

Note: the functions above must be performed in off-line condition and there's no data in the buffer.

Font control

It's just under the LQ indicator. Press this button to control the printing font. You can also use the command to control the printing font.

Tear off

When the continuous paper is selected, press this button to feed continuous paper forward to the tear-off position from the loading position. Press it again will cause the printer to feed the paper backward the top-of-form position.

LF/FF

Feed paper line by line when pressed shortly.

Eject a single sheet or advance continuous paper to the next top of form position when held down.

Load/Eject

Press this button to load paper. If paper has already been loaded, pressing this button will eject the paper. If the cut sheet is selected using path selection lever, the printer ejects the paper according to its ejection direction, otherwise if the continuous paper is selected, the printer ejects the paper backward to the standby position.

Advanced Functions:

To execute the following functions, hold down relevant button while turning the printer ON. Don't release the button until the print head starts to move.

Power-on self-test

Hold down LF/FF button while turning on the printer, the printer executes self-test. This function can help you check if the printer operates correctly. Refer

to the “Self-test of the printer” for the details.

Bi-directional adjustment

While holding down Shift button, LF/FF button and LOAD/EJECT button simultaneously, turn on the printer. The printer will enter into bi-directional adjustment mode. This function helps to correct printout alignment problems. Refer to chapter 6 “Using the bi-directional adjustment mode”.

Hex dump

To enter into hex dump mode, hold down both LF/FF and Load/Eject buttons while you turn on the printer. This function can help the experienced customer to solve some problems. Refer to chapter 6 “Using the Hex dump mode”.

Resume factory default settings

Hold down Shift button, Speed button and Tear off button simultaneously, and turn on the printer. After a long beep, the printer resumes factory default settings.

EDS (Electronic Dip Switches) setting

While holding down Shift button and Font button (or Shift+Tear off button, or Shift+Ready button) simultaneously, turn on the printer. The printer enters into EDS setting mode. Refer to the “Using EDS setting mode” below, and change the parameter settings of the printer.

Indicators

Power (green)

Lights up when the printer is powered on.

Ready (green)

Lit when printer is ready or press the Ready button.

Blinks when print head is overheated.

Paper Empty (red)

Lights up when there is no paper in the selected paper path.

Thick Paper (green)

Lights up when paper gap is set at level 2 or at higher level. And the impact force of the pins will be increased.

Draft (green)

It works with LQ indicator to indicate the speed. Refer to the table below:

Indicator printing quality	Draft	LQ
Draft	On	Off
LQ	Off	On
NLQ	On	On
HSD	Off	Off

LQ (green)

It works with Draft indicator to indicate the speed. Refer to the table above.

Tear (green)

Press the Tear off button, and after the printer has fed continuous paper to the tear-off position, it's on. Tear off the paper and press the Tear off button again to feed the paper backward the top-of-form position. It blinks while

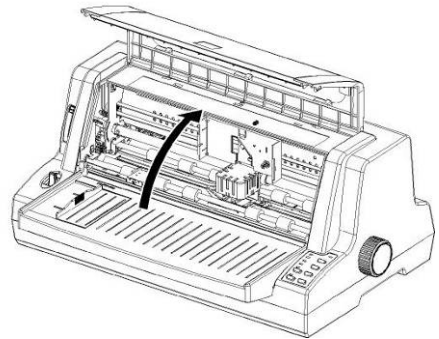
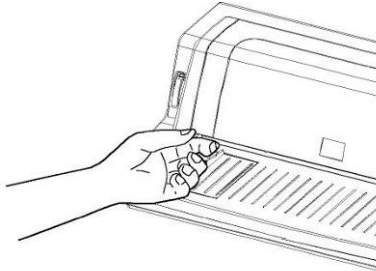
micro-adjusting the position of the top-of-form or the tear off position.

1.2.2 Installing the Ribbon Cartridge

Power off the printer before installing the ribbon cartridge.

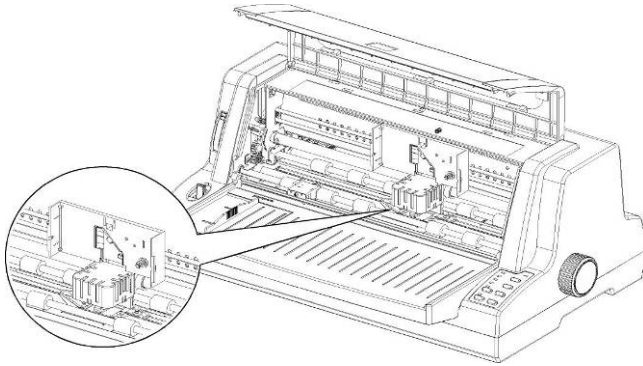
Take out the ribbon cartridge from the package, and follow the steps below to install it:

1. Lift up the transparent cover part and set the gap lever to the highest level.

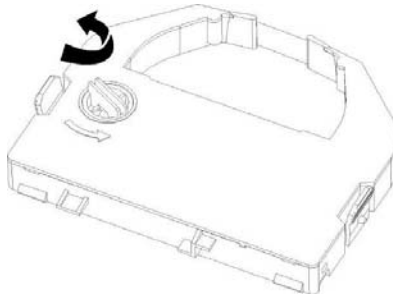


Don't move the print head while it is power-on, otherwise it may cause device damage. The print head may be hot while it just finishes printing. Wait until it cools down before restarting.

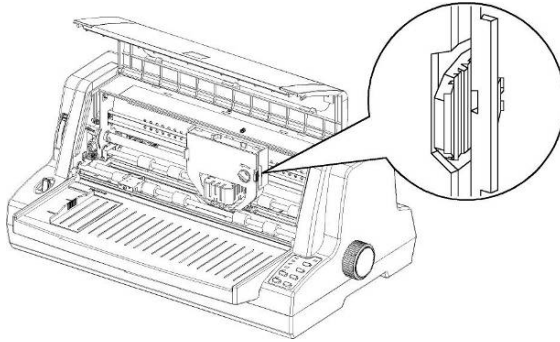
2. Refer to the figure below and move the print head to the middle (indicated by the gap on the metal board).



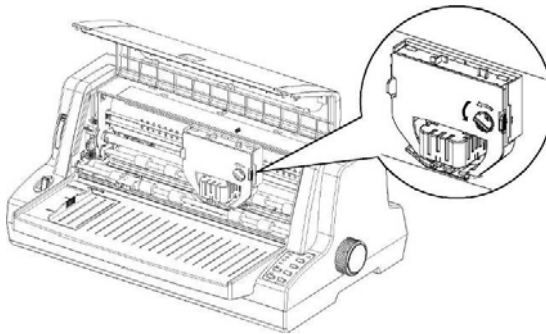
3. Tighten the ribbon according to the arrowhead so that the cartridge can be set easily.



4. According to the Figure below, set the ribbon between the print head and the platen and press the cartridge to the right position. Please make sure that it is fixed to the grooves firmly by its clips on both sides.



5. Tighten the ribbon again, and make sure that the ribbon is even and not overturned.



6. Lay down the transparent cover part and set the gap lever to the proper position.

1.2.3 Using EDS Setting Mode

The EDS setting can execute different functions by changing default power-on parameters. The EDS setting options can be selected through software, printer driver, or using the operator panel buttons.

The part below shows all the options of EDS in detail. Refer to the “How to change the EDS settings” for the alteration guidance about the EDS setting.

EDS Settings Options

The following table shows all the function options and relative parameter settings available in EDS setting mode. The factory default values are shown in Bold. (Note: There may be small differences among different versions for the factory default values.)

EDS1

Function option	Parameter settings
Reservation	
Emulator	ESC/P, IBM PP
Line width	110 , 106, 80
Copy capability	Normal, Mode 1 , Mode 2, Mode 3
Reservation	
Print direction	Auto , Bi-D, Uni-D
Reservation	
Pin Broken/Quiet Mode	Invalid , 1-12pin, 13-24pin, Quiet
Reservation	
Single sheet loaded	.5S auto, .8S auto , 1S auto, 2S auto, manual
Tear off	Mnual, 0.5S auto , 1S auto, 1.5S auto
Single sheet ejected	Frward , Bckward
Line Spacing	1/6inch , 1/8inch, 2/15inch
Reservation	
Reservation	
Char pitch	10 , 12, 15, 17, 20, proportion

Page length	11 , 3, 3.5, 4, 5.5, 8.5, 11/4, 11/3, 70/6, 12(inch)
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EDS2

Function option	Parameter settings
Interface	Parallel, Serial/USB, Auto
Buffer size	64k , 0k
Strobe timing	Normal , Special
Data length	8 , 7(bit)
Protocol	XON/XOFF , DTR/DSR
Baud rate	9600 , 600, 1200, 2400, 4800, 19200
Parity	Non , Odd, Even
Smooth paper	Auto , Narrow, Wide, Invalid
Skip-over-perforation	Invalid , 1/2, 2/3, 1(inch)
Reservation	
Reservation	
Zero style	Normal , Slashed
Auto LF	CR=CR , CR=CR+LF
Auto CR	LF=LF+CR , LF=LF
Font	Roman , Sanserif, Courier, Prestige, Script, OCR-B, OCR-A, Orator, Orator-S
Code Page	PC437 , Italic, PC850, PC860, PC863, PC865, PC858, PC864, DPFE, IRANSYS, MAINFRAME, MASKAN, PANIZ, POOYA, SADERAT, SAYEH, SINA, TARTAN, TEJARAT, USER1, USER2, USER3,
International Characters set	U.S.A. , France, Germany, U.K., Denmark, Sweden, Italic, Spain

EDS-3

Note: The EDS-3 settings are only available when the Arabic filter is integrated in the printer.

Function Option	Parameter settings
Operating Mode	7bit Arabic, 8bit Arabic , 8bit Switch, ANSI Latin, NativeLatin
Switching Type	Sequ GLCC , Bal GLCC, NB/NS GL, Escape Sequ,
Neutral Mode	Off, 2-Slided , 1-Sided Num, 1-Sided All
Code Set	ASMO-449, ASMO-449Plus , ASMO-708, ASMO-708 Plus, ADOS-710/96, ADOS-711, ADOS-720, ARCH, AL Arabic, IBM APC, XBASIC, DEC/8/ASMO, CODAR-UFD, Comter541, Comterm 348, Data General, NCR 96, NCR 64, ADOS-708, ADOS-864, ICL CODAR, ICLCrossRng, ICL ASMO-708, ADOS-710/128, NCR ASMO-708, HP Arabic-8, French/ASMO, ASMO/Fre, HP Enhanced, User Defined, ADOS-709, Integro708UNIX, Mus Al Arab, Alis MSW, Sakhr, Nafitha, COBRA Right, GENLINK Right, Jiskas, Ameer, Beehive, Citoh
Num Display	All Arabic, Bilingual , All Hindu, Farsi Biling, All Farsi
Sliding	All , Text, Numbers, None
DiacriticDisplay	Above/Below , Inline
Wide CharDisplay	Expand , Compressed
Major Mode	Arabic, Latin , Arabic Locked, Latin Locked
Col Headings	Off , On, NBS, NBS1
Thousand Sep	Off , On, Waw, Comma
DecimalSeparator	Touching , After, Within
Time Separator	Off , On
Date Separator	Off , On
Currency Sign	Off , On
French Notation	Off , On
Hindu Two	Naskh , Reqaa

Diac Visibility	Off , On
Diac Coding	Before, After
Delta Linking	No Link, Link
Boundary Scope	Line , Major, 2, 16
GLCC	Invisible , Visible, Part Visible
Compatibility	PLANET , Peripherals, Arabic MS-DOS, ICL, Al-Arabic, Integro, NCR, IBM, HP3000, Ameer, Beehive
Graphic Esc	Off , On
Arithmetic Operator	Off , On

How to change the EDS settings

Follow the steps below to enter into EDS setting mode and change the printer's default power-on parameters.

1. Hold down the **Shift** button and **Font** button simultaneously while turning on the printer. The printer prints current EDS-1 setting if the paper is loaded. Otherwise the printer directly enters into EDS-1 setting mode.

Please note that the **Font** button is just below the **LQ** indicator.

Hold down the **Shift** button and **Tear** button simultaneously while turning on the printer. The printer prints current EDS-2 setting if the paper is loaded. Otherwise the printer directly enters into EDS-2 setting mode.

Hold down the **Shift** button and **Ready** button simultaneously while turning on the printer. The printer prints current EDS-3 setting if the paper is loaded. Otherwise the printer directly enters into EDS-3 (ARB EDS setting) setting mode.

2. Press **Font** button to change setting options forward until the status of **Ready**

indicator, **Paper Empty** indicator and **Thick Paper** indicator indicate the right function option.

3. Press **Tear** button to change setting options backward until the status of **Ready** indicator, **Paper Empty** indicator and **Thick Paper** indicator indicate the right function option.
4. Press **Shift** button to change relative parameter setting until the status of **Draft** indicator, **LQ** indicator and **Tear** indicator indicate the right parameter setting.
5. Repeat step 2, step 3 and step 4, and change the EDS setting to suit your need.
6. After finishing all the settings, turn off the printer to exist the EDS setting mode.

During the setting, Printer saves your current settings automatically.

Note: the status of Ready, Paper empty, and Thick paper indicators indicate the selected function option and the status of Draft, LQ, and Tear off indicators indicate the selected parameter setting of the relative function.

Status of indicator: □ on ■ off * flash ☒ flash quickly.

The EDS parameter settings in the table with the grid indicate the current setting.

Changing the EDS Settings through PC

Use the EDS setting tool on the CD that comes with the printer.

This tool can also control the ON/OFF status of the Filter, if the Filter has been integrated into the printer.

2. F/W Upgrade and Parts Replacement

2.1 F/W upgrade

2.1.1 How to Upgrade the F/W

- Step 1: Make sure that the Printer is turned off, and connect the printer to PC via LPT cable.
- Step 2: Press Ready, Shift and Load/Eject buttons at the same time while turning on the printer. Don't release the buttons until all the indicators on the panel are lit.
- Step 3: The printer now enters into the upgrade state. In this state, the Ready, Thick Paper and LQ indicators on the panel flash slowly which means that the printer is waiting for the download.
- Step 4: If the Operation System of the PC is Win 98, Click "Start→Program→Accessories→MS-Dos" on the desktop. If the Operation System of the PC is Win 2000 or XP, Click "Start→Run" and type in "cmd".
- Step 5: Consult the directory where the F/W is located, and by typing in "Copy/b File Name LPT1 ", the F/W (program, font and boot) will be downloaded via LPT.
- Note: The program file is about 252 K Byte, the font is around 2 M Byte, the boot program is about 64K Byte.
- Step 6: Ready, Paper Empty, Thick Paper, Draft, LQ and Tear indicators are used to show the download process. If the F/W is upgraded successfully, the printer will reset automatically.

2.1.2 Download Specifications

1. Procedures described above are only used to upgrade the program and font.
2. On step 6, it will take no more than 3 minutes to upgrade the font, 30 seconds to upgrade program and 3 seconds to upgrade boot program. There might be minor differences depending on each PC, but if you fail to upgrade F/W beyond the time mentioned above, you can try again. If you still fail to upgrade after several attempts, please contact an agent or qualified maintenance personnel.
3. You can follow the Step 4 and Step 5 to send F/W via LPT, but you can also send F/W via LPT by other means.
4. The latest version of the F/W is available from the Department of the Customer Service of our company.

2.2 Parts disassembly and reassembly

This section describes how to disassemble and reassemble the parts in detail. Before doing that, keep in mind the following two cautions:

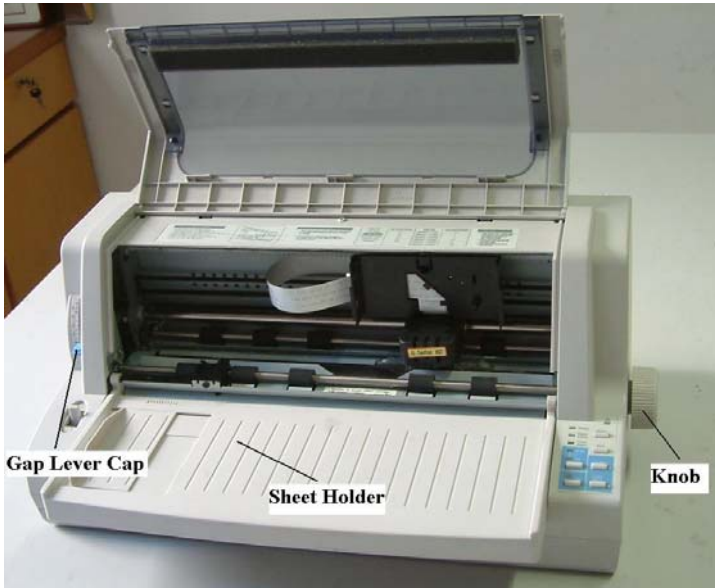


- 1. Before disassembly, pull out the power cable.**
- 2. Except special notification, reverse the order of disassembly to reassemble the part.**

2.2.1 Upper Case

Note: The operator panel is mounted on the upper case and connected to the controller via panel cable. Pay attention not to damage the panel cable while opening the upper case.

1. Remove the platen knob, gap lever cap and the sheet holder.



2. Remove all the six screws fixed on the upper case (on each side there are 3 screws).



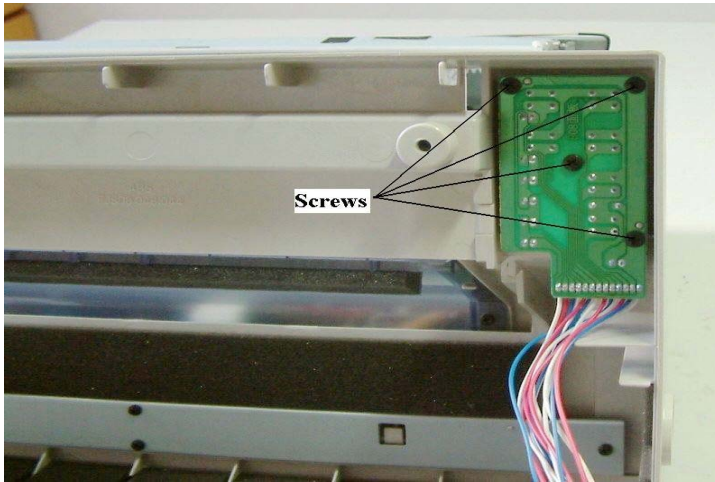
3. Lift the upper case and pull off the panel cable connected to the controller.



4. Remove the upper case.

2.2.2 Operator Panel

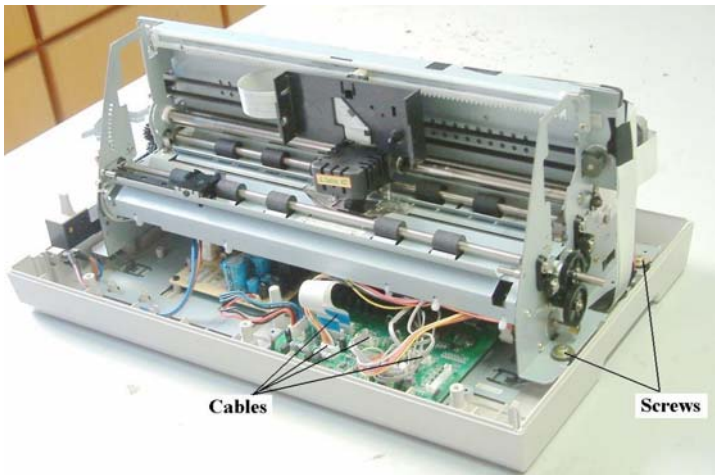
1. Loose four screws fixed on the operator panel.



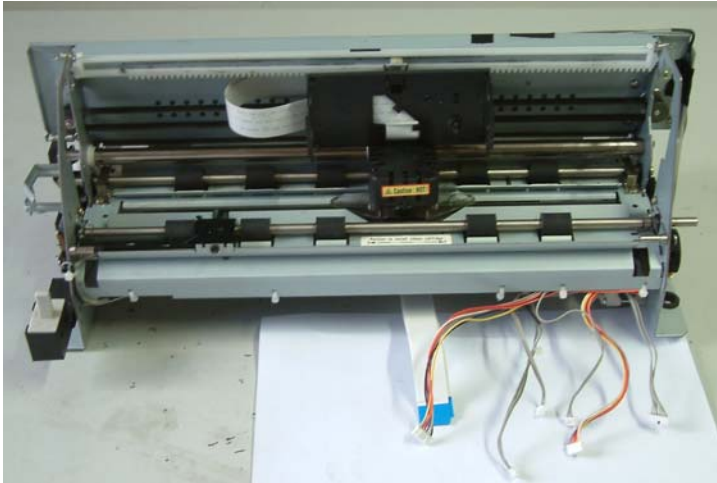
2. Remove the operator panel.

2.2.3 Printer Mechanism

1. Loose 4 screws fixed on the bottom case.



2. Pull out all the eight cables connected to the controller.



3. Remove the printer mechanism.

2.2.4 Controller (Main Logic Board)

1. Pull out the power cable connected to the main logic board.



2. Loose 4 screws fixed on the main logic board.
3. Remove the main logic board.

2.2.5 Power Supply Board

1. Pull off two connector cables.



2. Loose four screws on the power supply board.
3. Remove the power supply board.

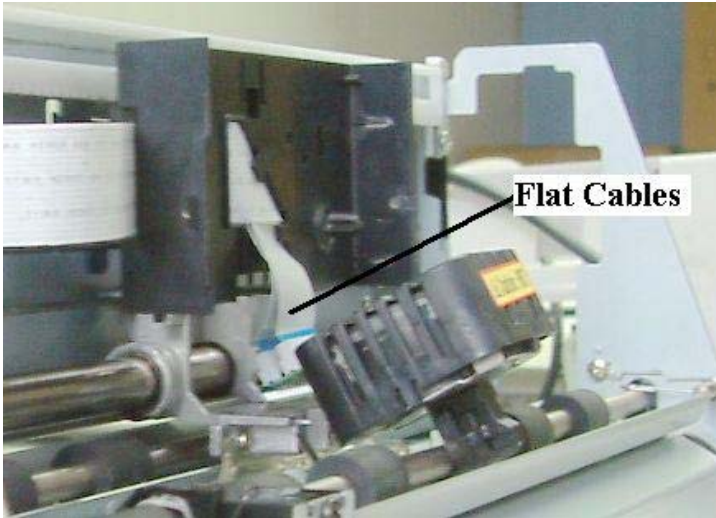
2.2.6 Print Head

1. Loose two screws on the print head.



2. Pull off two flat flexible cable connected to the print head.

3. Remove the print head.



2.2.7 Ribbon Septa

Loose two screws and remove the ribbon septa.

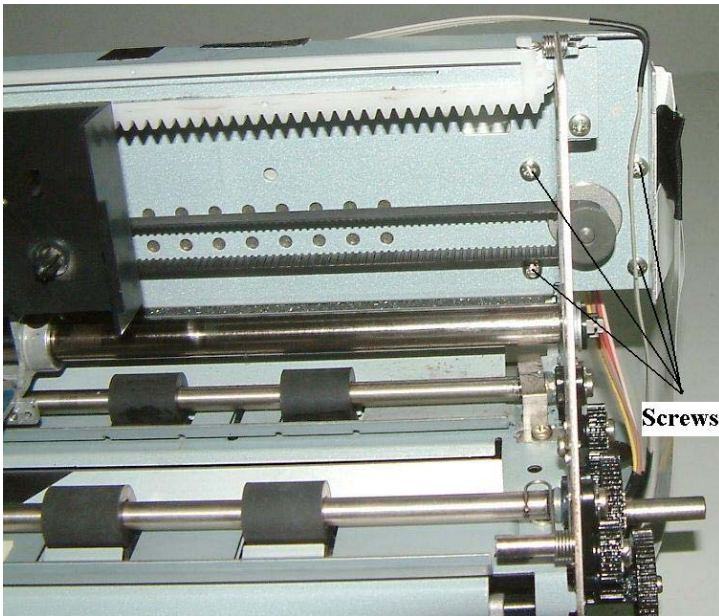


2.2.8 Carriage Motor Unit

1. Loose the screw.
2. Remove the spring.



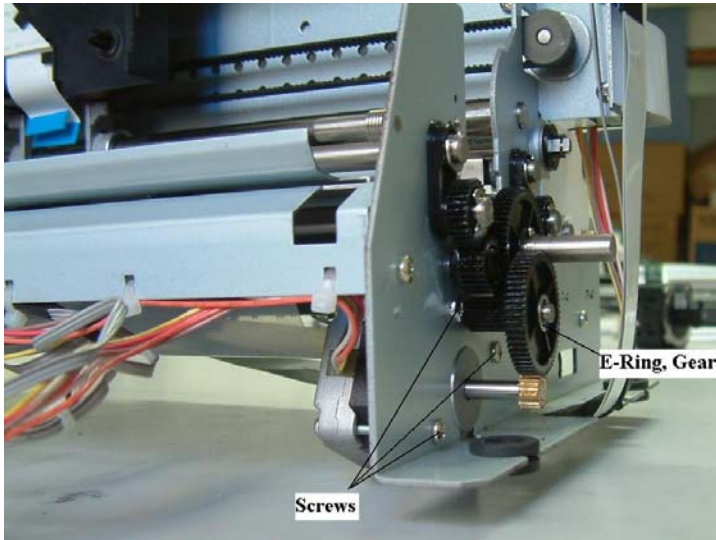
3. Loose 4 screws.



4. Remove the CR motor.

2.2.9 LF Motor

1. Remove the E-Ring.
2. Take off the gear.
3. Loose 3 screws.



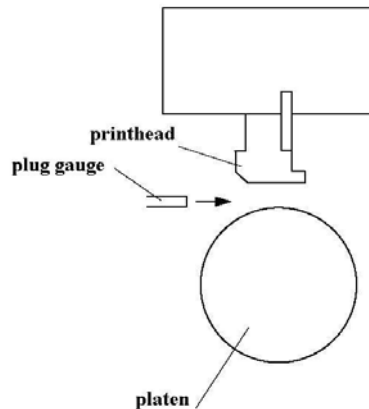
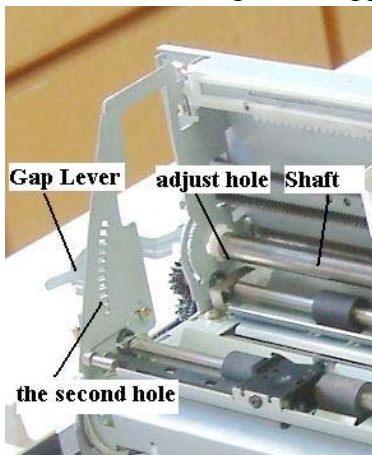
3. Adjustments and Tests

3.1 Adjustments

3.1.1 Adjustment of Gap

Adjustment of the gap between print head and platen:

1. Remove the upper case and ribbon septa.
2. Set the gap lever to the second position from the bottom.
3. Turn the screw to loose the gap lever a little.
4. Set the adjust hole on the left of carriage stay frontward and horizontally.
5. Measure the gap at the specified left, center and right positions with a gauge. The gap adjustment value should be 0.35mm.
6. Tighten the screw.
7. Install the ribbon septa and upper case.



3.1.2 BID Adjustment

If you find that the vertical direction of the text or that the table is not in line, please use bidirectional adjustment mode. The steps of bidirectional adjustment are as follows:

1. Load cut-sheet or continuous paper, and turn on the printer while pressing Shift button, LF/FF button and Feed/Eject button. The printer enters the bidirectional adjustment mode and then prints the initial adjusted value and four lines “|” to show the status of alignment.
2. Base your adjustment on the first line and the third line, if the second line and the fourth line lean to the left compared to the first and the third line, press Shift button and LF/FF button, the printer will print a new adjusted value and four lines “|” to show the present status of alignment. You may notice that the value has been decreased by 1 this time. If the second line and the fourth line lean to the right compared to the first line and third line, press Shift button+ Feed/eject button, the printer will also print a new adjusted value and four lines “|” to show the present status of alignment. You may notice that the value has been added by 1 this time.
3. Repeat step 2 until the four lines “|” are in line vertically. And you have finished adjustment in high-speed mode.
4. Press Font button, the printer will switch among different speed modes, and then print the initial adjusted value and four lines “|” to show the status of alignment.
5. Repeat step2, and you can make the adjustment for different speeds.
6. Turn off the printer or press the Ready button to exit the bidirectional adjustment mode

3.2 Testing Tools

3.2.1 Collective Tests

After maintenance or reassembly, the printer must be tested to make sure that it can perform all the functions successfully. Please use the multipart form (1+6) to run the collective tests, and check the results according to the items listed below:

1. Top of form position: Top line test

Target: Check if the form feed sensor and the sprockets have been fixed correctly. The sprockets should not stagger.

Judging standard:

- i) The distance from the TOP line to the edge of the paper should be the same as that of the sample.
- ii) The TOP line should be in parallel with the edge of the paper.

2. 48 points on the top left corner: The initial printing test

Target: After a longtime storage, the print head may fail to print correctly, so the 48 points on the top left corner are used to check this capability.

Judging standard: If 6 or more points are missing which means 6 or more pins are unable to print, the test fails.

3. Headline: Fourfold printing test

Target: Check if there is blank in the fourfold printout of the headline.

Judging standard: There should be no blank in the characters.

4. Printing the version of the F/W.

Target: Check if the printer has been installed the right F/W.

Judging standard: The printout should give the right version of the F/W.

5. Pin test

Target: Check if there is any broken pin and if the drive circuit of the pin works successfully.

Judging standard:

- i) All the 24 pins should stroke on the paper in turn.

- ii) If there is any pin misses, test fails.
- iii) If there is multi stroke in any position, test fails.

6. Carriage stay test

Target: Check if the carriage stay and the print head tray are horizontal.

Judging standard: Observe the last piece of the multipart form, if the lines are different in depth obviously, or some parts of the line disappear, test fails.

7. Printing gridding

Target: Check if the first column is in line at different speed.

Judging standard: Different lines are printed at different speed. If the gridding ? is not tidy, test fails.

8. Printing EEEEE

Target: Check if the paper can be fed precisely.

Judging standard: If the distance from the top of the “E” in the first line to the top of the “E” in the second line is not precisely 1/6 inch, test fails.

9. Black box test

Target: Check if the impact force fluctuates and the power supply, print head gap and ribbon turning while CR changes its direction are normal.

Judging standard:

- i) if the black box is not even or has blank strips, test fails.
- ii) In the second line, if the printing position is different from the sample after high speed leap, test fails.
- iii) In the second line, if black trace appears caused by the ribbon in the blank space, test fails.

10. BID test

Target: Check if the different moving directions of the CR at each speed affect the carrying mechanism evenly.

Judging standard: If the printout is not in line vertically ($>0.15\text{mm}$, which is more than half point's mismatch), BID test fails.

11. Backhaul test

Target: Check if each step passes through the same distance no matter the

paper is fed forward or backward.

Judging standard: If the result shows that the printing forward and backward can not cover each other, the test fails.

12. Font test

Target: Test the font IC and bus.

Judging standard: If some characters are missing or printed in wrong way, the test fails.

Note: If the printing result can not accord with the sample on some other sides, the tests fail.

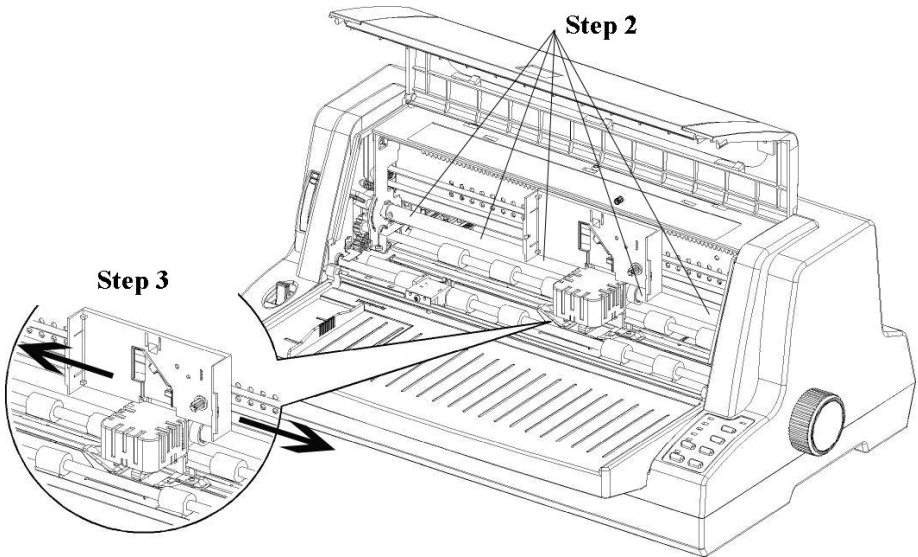
3.2.2 Maintenance

In order to keep your printer in top condition, you should clean thoroughly several times every year.

1. Make sure that the printer has been turned off, and then remove the sheet holder, printer cover, tractor and other installed options.
2. Use soft brush to clean dust and dirt carefully.
3. If there is dust and dirt on outer shell or paper guide, you can use a neutral detergent or a piece of soft cloth to clean dust and dirt. Remember to close the printer cover to prevent water pouring into the printer.
4. In order to keep the CR moving smoothly, it is important to clean and lubricate the carriage stay periodically.

Follow the steps below to lubricate the carriage stay:

- i. Clean the dust, dirt and oil spots on the carriage stay.
- ii Drop 5 drops of Tellus 32 oil evenly on the carriage stay.
- iii Make the carriage move several times from one side to the other so that the carriage stay can be lubricated efficiently and the drop of oil won't affect other parts.



Don't use alcohol to clean printer, chemical products will damage printer.

Don't use hard or abrasive brush.

Don't spray lubricant oil into the printer, because the improper oil will damage mechanical parts.

In the event you need lubricant oil, please contact with our agent or qualified maintenance personnel.



Be careful not to spray water on printer mechanical or electronic parts.

3.2.3 Mistake indication on the panel

Many failures of the printer can be confirmed through the indicators on the panel, and the status of the indicators can help to find what causes the failure. Where there is error, the printer head will give out a long beep, and then one of the following statuses appears:

Panel Indicator	Reason of the Failure
Ready light flashes	RAM test error
Paper-empty light flashes	The temperature or voltage of the printer head exceeds the range
Thick-paper light flashes	CR motor failure
Draft light flashes	EEPROM read/write error
LQ light flashes	Data from serial interface overflows
Tear-off light flashes	Program execution error. Usually it is bus error (such as static electricity interference).

When the above errors occur, the printer won't move until it is powered off. When the printer head hasn't been installed or the cable of printer head hasn't been plugged in. The printer won't move nor alarm.

4. Spare Parts List

Globalis 1170 Parts List		
Part NO.	Part Name	Remark
GZSB110000	Ribbon Cassette (1170)	For Globalis 1170
GTD0010001	Printhead (001)	For Globalis 1170
GWY0010004	Printhead FFC R-17 (001)	For Globalis 1170
GWY0010005	Printhead FFC F-15 (001)	For Globalis 1170
GZQ0010005	Platen (001)	For Globalis 1170
GZQ0010044	CR Motor (001)	For Globalis 1170
GZQ0010033	PF Motor (001)	For Globalis 1170
GYZB110000	Main Board (B11)(P)	For Globalis 1170 Parallel Interface
GYZB110001	Main Board (B11)(P+U)	For Globalis 1170 Parallel Interface+USB
GYZB110002	Main Board (B11)(P+S)	For Globalis 1170 Parallel Interface+Serial
GYZB080003	Control Panel Board (B08)	For Globalis 1170
GYZ0010007	Power Supply Board (001)	For Globalis 1170
GYC0010001	Tractor Unit R (001)	For Globalis 1170
GYC0010000	Tractor Unit L (001)	For Globalis 1170

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