

Digital Photo Printer

CHC-S2145-5

Product Specifications

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 **SHINKO**

神鋼電機株式会社

Digital Photo Printer
CHC-S2145-5
Product Specifications

First edition : September 26, 2006
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SHINKO ELECTRIC CO.,LTD.

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1. Scope

This specification applies to the digital photo printer CHC-S2145-5 manufactured by SHINKO Electric Company Limited.

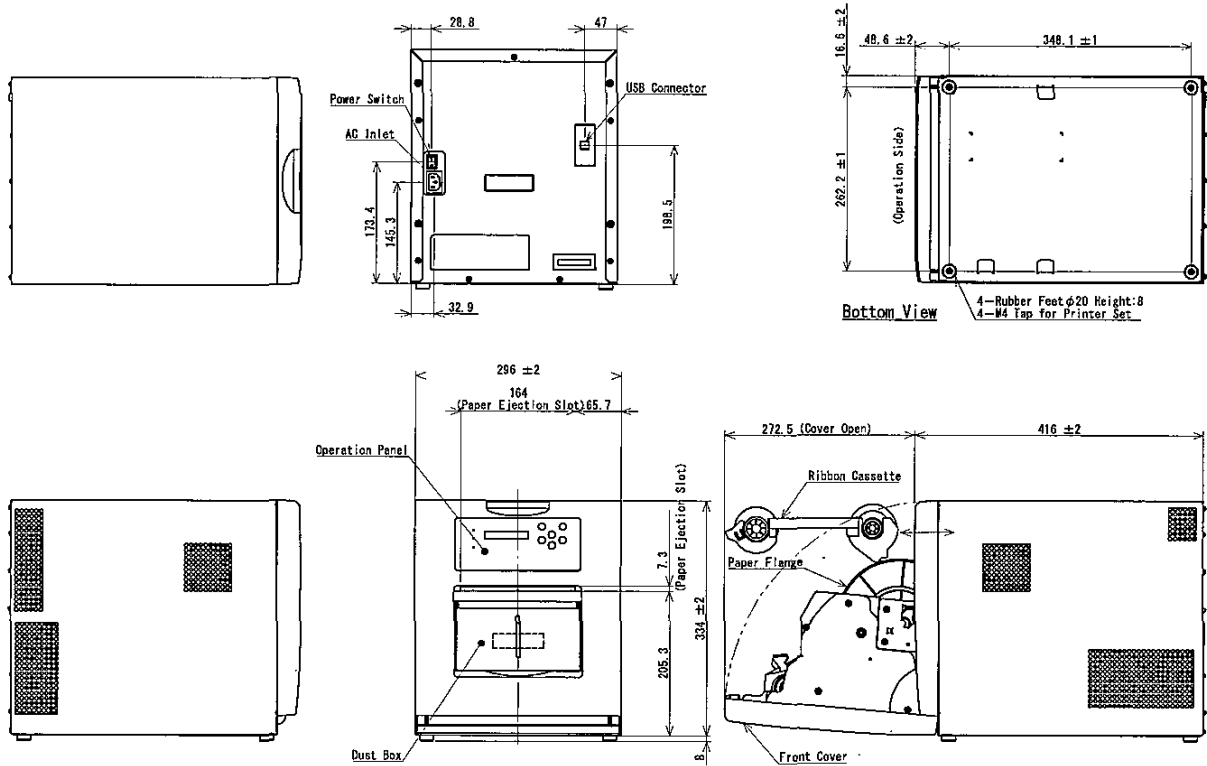
2. Appearance

2.1 Printer Dimensions, Weight

Dimensions : (H)342mm × (W)296mm × (D)416mm
(Excluding the projecting parts, Closed front cover)

Weight : 20 +/- 0.2Kg
(Excluding articles of consumables and accessories.)

2.2 Appearance



3. Accessories

The following accessories are to be packed in the printer box.

No	Part Name	Part Number	Q'ty	Remarks
1	Power Cord (One Power Cord will be attached according to each area described in "Remarks".)	060585443051	1	For Japan 1.5m (PSE Standard)
		1641130440055	1	For USA 3.0m (UL Standard)
		1641130663	1	For Europe 2.7m
2	Ink Ribbon Cassette	1641104998ES	1	
3	Dust Box	1641132966ES	1	
4	Paper flange(R)	1641115579ES	1	
5	Paper flange(L)	1641115580ES	1	
6	Spacer	1641115581ES	2	
7	Operation Manual	YTE8-J0288E	1	
8	Ferrite core	060669120	1	

4. Operating Condition

4.1 Temperature

➤ Printer Unit

Operating : +10 to +35 degrees C

Storage : -20 to +55 degrees C

➤ Consumables (Storage temperature)

Ribbon : 0 to +35 degrees C (1-year guarantee)

Paper : 0 to +35 degrees C (1-year guarantee)

4.2 Humidity

➤ Printer Unit

Operating : 20% to 80% (RH)

Storage : 10% to 95% (RH) (There must be no condensation in both cases)

4.3 Location

Locate the printer in place not exposed to rainwater, direct sunlight, etc.

4.4 Dust Prevention

No printer faults will occur under normal condition.

4.5 Operation Environment

The printer is to be used in an ordinary environment unless otherwise specified. Use of the printer in a special environment as shown below shall be discussed separately:

- Environment where the printer is always subjected to oily smoke or exhaust gas
- Chemical atmosphere
- Outdoors

5. Electrical specification

5.1 Power Voltage

90 to 264VAC, automatic switching

5.2 Power Source (Frequency)

48 Hz to 62 Hz

5.3 Power Consumption (maximum value)

	AC100V		AC220V	
	Watt[W]	Ampere[A]	Watt[W]	Ampere[A]
Idle (*1)	35W or less	0.5A or less	35W or less	0.3A or less
Printing	480W or less	4.8A or less	480W or less	2.6A or less

*1: Except during preheating a thermal head.

5.4 Caloric Values (maximum value)

1728 kJ

5.5 Impulse Noise

Missing dots, miss-registration and extra prints should not be happened, when dummy noises with pulse widths of 800ns, with rise and fall times of 2ns or less, and when polarities of + and - are applied to the input power line at a voltage of 1.2kV at a 100Hz frequency. (Self-printing)

5.6 Electrostatic Noise

Comply with IEC61000-4-2 Testing Level 3.

Judgement Basis: Rank B.

Content of the Basis: Continuous operation is enabled during testing, though function and operation specified is not complied. Specified operation is enabled after cancellation of the noise.

5.7 AC Rush

35A or less at 120VAC, 60Hz

(Except less than 100usec surge current)

5.8 Leakage Current

1mA or less at 120VAC, 60Hz

5.9 Insulation Resistance

More than 10M Ω at 500V DC between the primary circuit and the frame.

5.10 Dielectric Strength

1.5k VAC, 50 Hz or 60 Hz for 1 minute. (Between the primary circuit and frame)

(Detailed measurement procedures are conformed to IEC 435.)

6. Standard/ Marks

6.1 Safety Regulations

- UL60950-1
- C-UL (Conform to CSA C22.2 No.60950-1)
- EN60950-1

6.2 EMI Regulations

- VCCI Class A
- FCC Part15 Class A
- EN55022 Class A

7. Product Life, Period of Guarantee

7.1 Product Life

The product life is to be discussed separately.

7.2 Period of Guarantee

The period of guarantee is to be discussed separately.

8. Print Specifications

8.1 Printing Method

Non-impact sublimite thermal transfer printing.

8.2 Colors

Approximately 16,700k colors (256 tones for each ribbon color)

8.3 Thermal Print Head

- Heat Element : Thin-film resister
- Numbers of element : 1,844
- Element Layout : Arranged in one horizontal row
- Element Density : 300 dots per inch

8.4 Dot Pitch

- Horizontal dot pitch 0.0845 mm (300-dot lines per inch)
- Vertical dot pitch 0.0845mm (300-dot lines per inch)

8.5 Paper Handling Method

Friction Feed

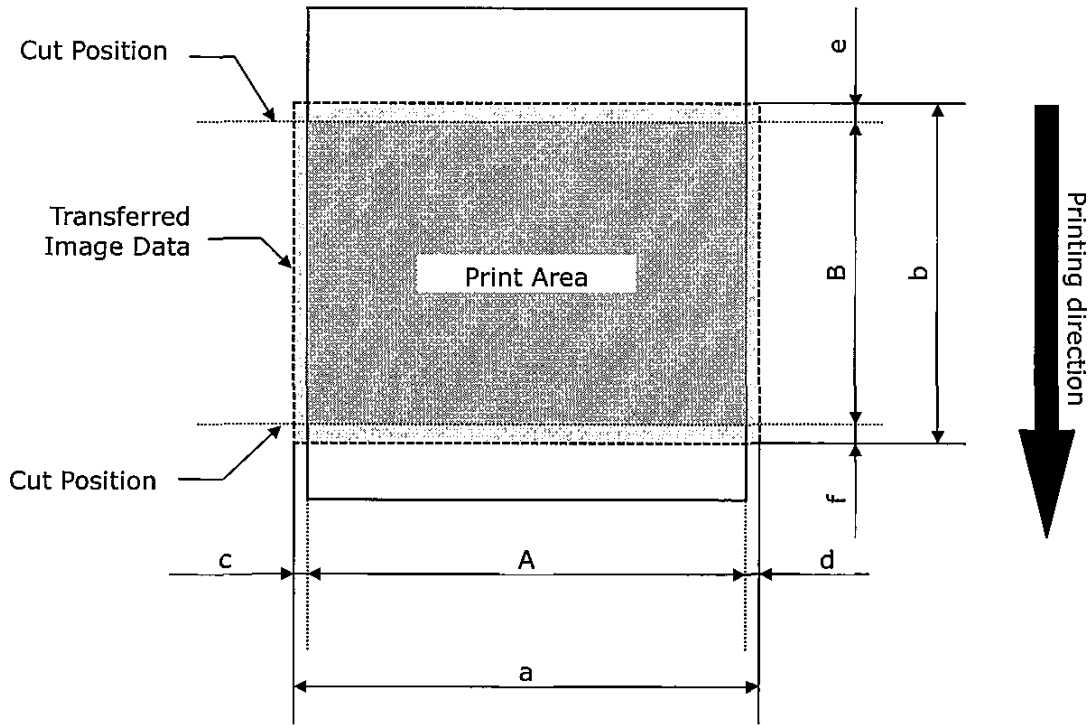
8.6 Paper Feeding

Roll paper feed (Roll to cut method)

8.7 Print Area

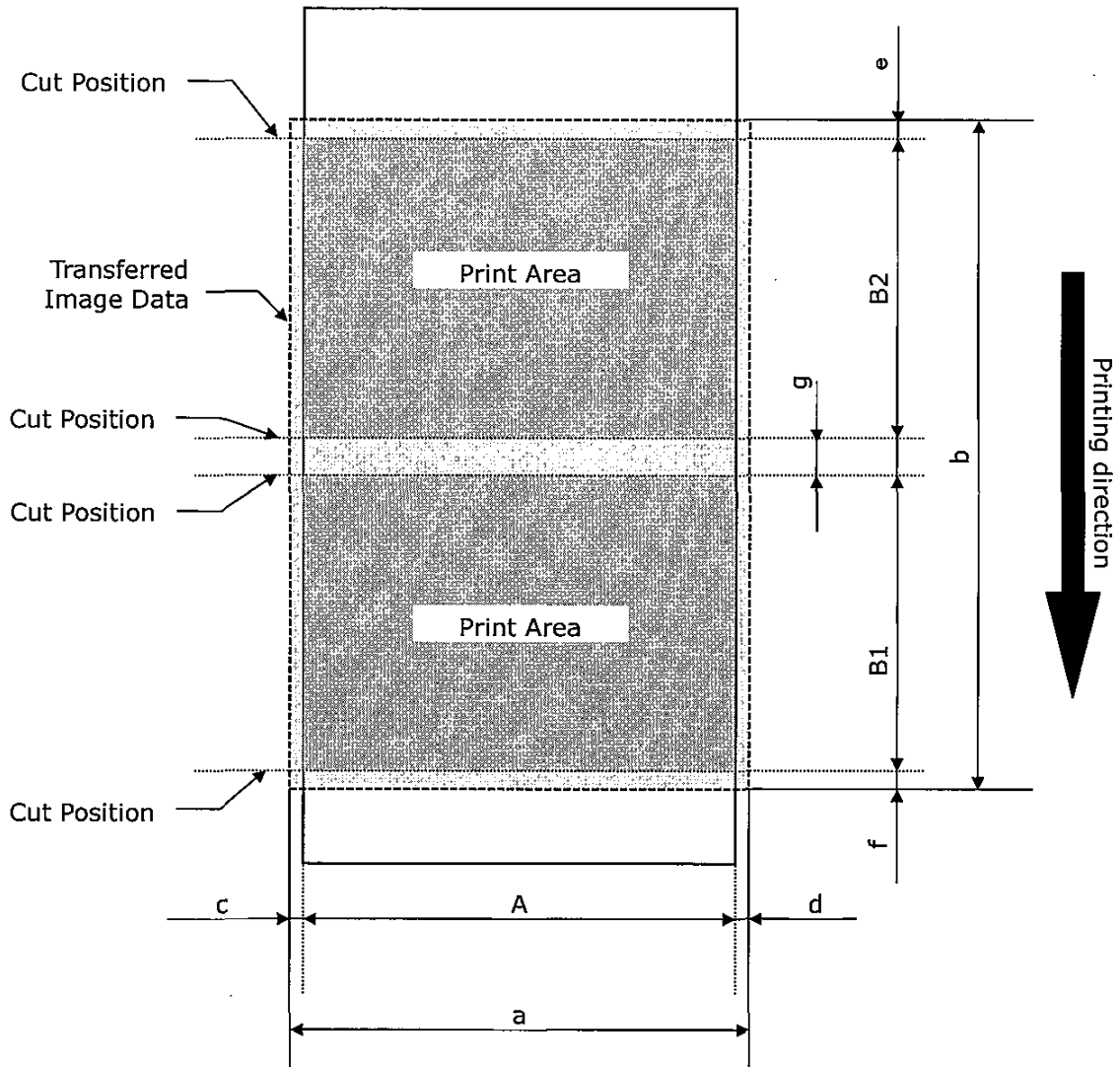
The figure and table below shows effective printing area of this printer.

(1) Standard print size



Name	Print Area (Finished Size)		Data Image Area The value in parentheses is the number of pixels.			Area with no prints (Width Direction)		Dummy print area (Feed Direction)	
	A	B	a	b	Image Size	c	d	e	f
3.5x7" size	127 ^{+/-0.5} mm	89 ^{+/-1.0} mm	131.1 mm	91.5 mm	1548 × 1088 pixels	2.05 ^{+/-2.} ₀ mm	2.05 ^{+/-2.} ₀ mm	1.25 ^{+/-1.0} mm	1.25 ^{+/-1.0} mm
4x6" size	152 ^{+/-0.5} mm	102 ^{+/-1.0} mm	156.1 mm	104.5 mm	1844 × 1240 pixels	2.05 ^{+/-2.} ₀ mm	2.05 ^{+/-2.} ₀ mm	1.25 ^{+/-1.0} mm	1.25 ^{+/-1.0} mm
5x7" size	127 ^{+/-0.5} mm	178 ^{+/-1.0} mm	131.1 mm	180 mm	1548 × 2140 pixels	2.05 ^{+/-2.} ₀ mm	2.05 ^{+/-2.} ₀ mm	1.0 ^{+/-1.0} mm	1.0 ^{+/-1.0} mm
6x8" size	152 ^{+/-0.5} mm	203 ^{+/-1.0} mm	156.1 mm	205 mm	1844 × 2434 pixels	2.05 ^{+/-2.} ₀ mm	2.05 ^{+/-2.} ₀ mm	1.0 ^{+/-1.0} mm	1.0 ^{+/-1.0} mm
6x9" size	152 ^{+/-0.5} mm	229 ^{+/-1.0} mm	156.1 mm	231 mm	1844 × 2740 pixels	2.05 ^{+/-2.} ₀ mm	2.05 ^{+/-2.} ₀ mm	1.0 ^{+/-1.0} mm	1.0 ^{+/-1.0} mm

(2) 6x9 Combo print (4x6 2up)



Name	Print Area (Finished Size)		Data Image Area The value in parentheses is the number of pixels.			Area with no prints (Width Direction)		Dummy print area (Feed Direction)		
	A	B1,B2	a	b	Image Size	c	d	e	f	g
6x9" size Combo (4x6"-2Up)	152 ^{+/-0.5} mm	102 ^{+/-1.0} mm	156.1 mm	210 mm	1844 × 2492 pixels	2.05 ^{+/-2.0} mm	2.05 ^{+/-2.0} mm	1.0 ^{+/-1.0} mm	1.0 ^{+/-1.0} mm	4.0 ^{+/-1.0} mm

8.8 Consumables (Ink Ribbon and Paper)

The table below lists consumables compatible with the printer.

Name	Part Number	Contents	Print Size	Remarks
3.5x5" Size Set	1641109877	3.5x5" Size paper x 2 rolls 3-color OP ribbon x 2 rolls	> 3.5x7" size	790 prints/roll
5x7" Size Set	1641109879	5x7" Size paper x 2 rolls 3-color OP ribbon x 2 rolls	> 4x6" size	400 prints/roll
4x6" Size Set	1641109879	4x6" Size Paper x 2 rolls 3-color OP ribbon x 2 rolls	> 5x7" size	700 prints/roll
6x9" Size Set	1641109878	6x9" Size Paper x 2 rolls 3-color OP ribbon x 2 rolls	> 6x9" size > 6x8" size > 6x9" size Combo(4x6"-2 Up)	310 prints/roll

8.9 Print Speed

Printing speed shall be as shown below.

Printing conditions: Ambient temperature 20 degrees C

Density setting 100%

Use 3C + Over Coat Ink Ribbon

Paper Size	Printing Time	
	Standard Mode	Fine Mode
4x6" Size	6.9 seconds or less	8.2 seconds or less
3.5x5" Size	6.4 seconds or less	7.5 seconds or less
5x7" Size	10.4 seconds or less	12.9 seconds or less
6x8" Size	13.2 seconds or less	15.9 seconds or less
6x9" Size	13.2 seconds or less	15.9 seconds or less

Note1: Printing speed does not include data transferring time.

The above speeding is measured from the completion of previous paper cut to the completion of paper cut.

Note2: The specification and a performance may be changed without a preliminary announcement for improvement.

8.10 Print Quality

According to Shinko quality standard.

Excepts a print that fails the Image Quality criteria that occurred accidentally. And the rate for this printer shall be less than or equal to 1.4%.

8.11 Noise Level

Operation: 70 db (A) or less, as measured through our standard pattern printing.

(Average value specified in JIS Z8731)

9. Controller

9.1 PC Interface

The printer is equipped with Hi-Speed USB (USB 2.0) interface which allows for fast image data transfer.

9.2 Input Data Format

Supports the following format. The numbers of image pixels is fixed.
RGB (CMY) raw bitmap format

9.3 Buffer Memory

The printer is equipped with SDRAM of 32M bytes as standard.
While the data of the current page is being printed, the data of the following page can be input.

9.4 Image Processing Function

No image processing functions.

Remarks:

Enlargement, rotation, color matching, tone curve, and edge enhancement and other process need to be done at host computer.

9.5 Printer Information

The printer has the function to inform the host computer about the information shown below via USB interface.

See the CHCUSB DLL Development Specification (YSD8-J0680) for details on the method of getting information and the response contents.

- 1) Number of prints:
 - Lifetime numbers of print
 - number of prints for maintenance
 - number of remaining media

- 2) Software Version:
 - USB interface control program
 - MAIN control program
 - DSP control program
 - Parameter table data

- 3) Printer Error Information
- 4) Printer Media Information:
 - Printable size
 - Media type
 - Print type code

9.6 Firmware Downloading Function

The printer has a function to update from the host computer via USB interface.

9.7 Test Prints Function

The printer has the function which prints a test print pattern that is SHINKO standard pattern by pushing the button mounted on Operation panel.

9.8 Error Recovery Print Function

When an error occurs during printing, the printer prints a recovery print after an error is cleared.

- Paper Jam
- Paper Empty
- Ink Ribbon Empty

*When the power supply of the printer is turned off before clearing an error, or when consumable supplies are changed to which sizes are difference, A recovery print is not executed.

9.9 Print Mode Function

The printer can change standard print mode and fine print mode with the instructions from the host computer.

9.10 Print Counter Control Function

The printer has 6 types of print counter.

Reset timing and update timing for each counter are as follows;

No.	Counter Name	Function	Reset Timing	Update Timing
1	Lifetime Number of Prints	Manage the number of prints after the printer is manufactured.	No reset.	1 incremental count after completion of cut process after printing.
2	Number of Prints after Media Replacement	Manage number of prints after paper loading.	Reset to 0 inside the printer, when paper loading is completed.	1 incremental count after completion of cut process after printing.
3	Number of Prints (for maintenance)	Manage the number of prints after manufacture or repair.	Reset to 0, after the printer is repaired.	1 incremental count after completion of cut process after printing.
4	Head Counts	Manage number of prints with the thermal head currently in use.	Reset to 0, when thermal head is replaced.	1 incremental count after completion of cut process after printing.
5	Cutter Counts	Manage number of prints with the cutter assembly currently in use.	Reset to 0, when cutter assembly is replaced.	1 incremental count after completion of cut process after printing.
6	Remaining Amount of Ink Ribbon ID Tag	Manage number of ink ribbon which are usable for printing.	No reset. (Read from Ink Ribbon ID Tag)	1 incremental count just before print process.

10. Operation

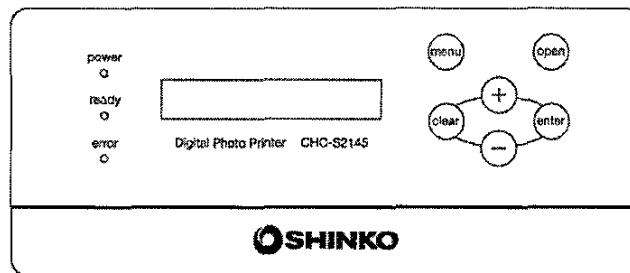
10.1 Power Switch and Operation Lever

Name	Function
Power Switch	This switch turns on and off the power of the printer. When the "I" side is pressed, the power turns on. When the "O" side is pressed, the power turns off.

10.2 Operation Panel

Operation panel consists of the followings.

- 1) LCD
- 2) 3 LEDs
- 3) 6 Push Buttons



Operation panel

10.2.1 LED

Name	Color	Status
power LED	Orange	Indicates that the power is on.
ready LED	Green	Indicates that data can be received.
error LED	Red	Indicates that error occurs.

10.2.2 Push button

Name	Description
Open Button	to open the front cover.
menu Button	to select the menu in Setup Mode.
enter Button	to execute the menu in Setup Mode.
clear Button	to cancel the menu in Setup Mode.
+Button	to select the menu in the menu mode.
-Button	to select the menu in the menu mode.

10.3 LCD

16 characters of LCD with back light.

10.3.1 Operating messages

No.	LCD Indication	Description
1	"Ready 4x6""	Display when the printer is in the status which can print.
2	"Initializing "	Display during initializing the printer.
3	"Ribbon Checking "	Display during checking whether the ribbon can use.
4	"Paper Reloading "	Display during paper reloading.
5	"Paper Loading "	Display during paper loading.
6	"Printing "	Display during printing.
7	"Cooling Down "	Display during cooling the thermal head.
8	"Warming Up "	Display during warming the thermal head.
9	"Updating... " "DSP update... " "Table update... "	Display during updating firmware.

10.3.2 Error messages

Refer to Appendix A Error code table.

10.3.3 Menu messages

Refer to Appendix B Menu list table.

11. Interface Specification

11.1 Function

The printer supports the high speed USB2.0.

11.2 Connector

Type B connector

Model: JST UBBS-4R-D14(LF)(SN) equivalent

11.3 Pin Assignment

Pin No.	Signal Name
1	VBUS
2	D-
3	D+
4	GND

11.4 USB Vender ID and Product ID

The USB Vender ID and product ID of this printer are as follows:

- Vender ID : 10CEh
- Product ID : 000Eh

11.5 Required Specification for Host Computer

11.5.1 Host Controller

Recommended host controller is as follows.

- Intel USB2.0 Enhanced Host controller with chip set built-in.

11.5.2 Driver

Recommended driver is as follows.

- Microsoft EHCI (Enhanced Host Controller Interface) Driver

11.5.3 CPU

IBM-PC/AT Compatible.

11.5.4 OS

Supported OS is as follows.

- Japanese/English Microsoft Windows2000 Professional SP4
- Japanese/English Microsoft Windows XP (Professional/Home)

Appendix A. Error code table

If two or more errors occur simultaneously, the error message of the smallest number will be displayed on LCD.

No.	Description	Method to Remove	Error Message	Note
1	Controller Error	Turn off the power supply of printer.	"Control Error 01"	EEPROM
2			"Control Error 02"	
3			"Control Error 04"	DSP
4			"Control Error 05"	
5			"Control Error 06"	MAIN Firmware Download
6			"Control Error 07"	
7			"Control Error 08"	DSP Firmware Download
8			"Control Error 09"	
9			"Control Error 0A"	ASIC
10			"Control Error 0B"	FPGA
11			"Control Error 0D"	Tone Curve Download
12			"Control Error 16"	Parameter Table Download
13			"Control Error 17"	Parameter Table Download
14			"Control Error 18"	Parameter Table Download
15			"Control Error 29"	DSP Communication
16			"Control Error 2A"	
17	Mechanical Error	Turn off the power supply of printer.	"Mecha Error 01"	Thermal Head ASSY
18			"Mecha Error 02"	
19			"Mecha Error 03"	
20			"Mecha Error 04"	Pinch Roller ASSY
21			"Mecha Error 05"	
22			"Mecha Error 06"	
23			"Mecha Error 07"	
24			"Mecha Error 08"	Cutter ASSY
25			"Mecha Error 09"	
26			"Mecha Error 0A"	

No.	Description	Method to Remove	Error Message	Note
27	Sensor Error	Turn off the power supply of printer.	"Sensor Error 01"	Thermal Head
28			"Sensor Error 02"	Pinch Roller
29			"Sensor Error 03"	Cutter
30			"Sensor Error 04"	
31			"Sensor Error 05"	
32	Temperature Sensor Error	Turn off the power supply of printer.	"TempSensErr 01"	Thermal Head Thermistor High Temperature
33			"TempSensErr 02"	Thermal Head Thermistor Low Temperature
34			"TempSensErr 03"	Environmental Thermistor High Temperature
35			"TempSensErr 04"	Environmental Thermistor Low Temperature
36			"TempSensErr 05"	Warming up Time Out
37	Front Cover Open	Close the front cover	"Cover Open "	
38		Push the open button	"Cover Open Error"	
39	Paper Jam	Remove the jammed paper	"Paper Jam 01"	Paper Loading
40			"Paper Jam 02"	
41			"Paper Jam 03"	
42			"Paper Jam 04"	
43			"Paper Jam 05"	
44			"Paper Jam 11"	Paper Reloading
45			"Paper Jam 12"	
46			"Paper Jam 13"	
47			"Paper Jam 14"	
48			"Paper Jam 15"	
49			"Paper Jam 16"	Paper taking up
50			"Paper Jam 21"	
51			"Paper Jam 22"	
52			"Paper Jam 41"	
53			"Paper Jam 42"	
54			"Paper Jam 43"	Printing
55			"Paper Jam 44"	
56			"Paper Jam 45"	
57			"Paper Jam 46"	
58			"Paper Jam 47"	
59	"Paper Jam 49"			
60	"Paper Jam 4A"	Ribbon cut		
61	"Paper Jam 61"	The printer can not be loading paper.		
62	"Paper Jam 62"			
63	Consumables	Set a ink ribbon and paper	"No Ribbon, Paper "	A ink ribbon and a paper are not set.
64		Set a ink ribbon	"No Ribbon "	A ink ribbon is not set.
65		Replace a ink ribbon	"Ribbon Empty "	
66			"Unmatch Ribbon "	This ribbon does not match the paper which has set to the printer.
67			"IncorrectRibbon1"	The ribbon which cannot be used was set.
68		"IncorrectRibbon2"		
69		"IncorrectRibbon3"		
70		Set a paper	"No Paper "	A paper is not set.
71		Replace a paper	"Paper Empty "	
72			"Unmatch Paper "	This paper does not match the ribbon which has set to the printer.

Appendix B. Menu display list

No.	Message	Description	Push enter	Push menu	Push clear
1	"Test Print Mode "	Test Print	Executes test print. Refer to (1) Test Print.	Move to next menu.	Return to Ready state.
2	"Remain XXX/YYY"	Remaining Amount of Ink Ribbon	Not applicable		
3	"Printed XXXXXX"	Displays Lifetime Number of Prints			
4	"Print Mode "	Changing Print Mode	Move to Print mode Menu. Refer to (2) Print Mode Menu.		
5	"Language "	Changing language to display	Move to Language Menu. Refer to (3) Language Menu.		
6	"MAIN Ver. XX.XX"	Displays MAIN Firmware version	Not applicable		
7	"DSP Ver. XX.XX"	Displays DSP Firmware version			
8	"USB Ver. XX.XX"	Displays USB Firmware version			
9	"TABLE Ver. XX.XX"	Displays Parameter Table version		Move to beginning menu.	

(1) Test Print

No.	Message	Description	Push enter	Push menu	Push clear
1	"Data Creating "	Shows that the printer is writing the test pattern to internal memory.	Not applicable		
2	"Printing "	Shows that the printer is printing test pattern.	Not applicable		

(2) Print Mode Menu

No.	Message	Description	Push enter	Push menu	Push clear
1	"Mode: Standard "	Set up the printer as standard print mode	Memorizes print mode into memory.	Changes LCD display to "Fine Print Mode"	Move to previous menu.
2	"Mode: Fine "	set up the printer as fine print mode		Changes LCD display to "Standard Print Mode"	

(3) Language Menu

No.	Message	Description	Push enter	Push menu	Push clear
1	"Lang. :Japanese"	Displays a message on LCD in Japanese.	Memorizes language to display into memory. This setting is validated when a printer returns to Ready state.	Changes LCD display to "English"	Move to previous menu.
2	"Lang. :English "	Displays a message on LCD in English.		Changes LCD display to "Japanese"	