

USER'S MANUAL

PA-3310

**The One-of-a-kind Highly
Integrated 15" RISC POS
Terminal**

PA-3310 M1

PA-3310 POS System

The One-of-a-kind Highly Integrated 15" RISC POS Terminal

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DISCLAIMER

This user's manual is meant to assist users in installing and setting up the system. The information contained in this document is subject to change without any notice.

CE NOTICE

This is a class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

FCC NOTICE

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

You are cautioned that any change or modifications to the equipment not expressly approve by the party responsible for compliance could void your authority to operate such equipment.

CAUTION! Danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturer's instructions.

WARNING! Some internal parts of the system may have high electrical voltage. And therefore we strongly recommend that qualified engineers can open and disassemble the system. The LCD and Touchscreen are easily breakable, please handle them with extra care.

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INTRODUCTION

CHAPTER

1

This chapter gives you the information for the PA-3310. It also outlines the system specifications.

Sections included:

- About This Manual
- POS System Illustration
- System Specifications
- Safety precautions

Experienced users can jump to chapter 2 on page 2-1 for a quick start.

1-1. ABOUT THIS MANUAL

Thank you for purchasing our PA-3310 Series System. The PA-3310 is an updated system designed to be comparable with the highest performance of IBM AT personal computers. The PA-3310 provides faster processing speed, greater expandability and can handle more tasks than before. This manual is designed to assist you how to install and set up the whole system. It contains four chapters and two appendixes. Users can configure the system according to their own needs.

Chapter 1 Introduction

This chapter introduces you to the background of this manual. It also includes illustrations and specifications for the whole system. The final section of this chapter indicates some safety reminders on how to take care of your system.

Chapter 2 System Configuration

This chapter outlines the location of motherboard components and their function. You will learn how to set the jumpers and configure the system to meet your own needs.

Chapter 3 Applications & Widgets

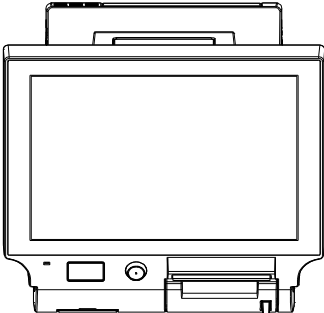
This chapter contains information of system applications and Widgets pre-installed in PA-3310.

Appendix A System Diagrams

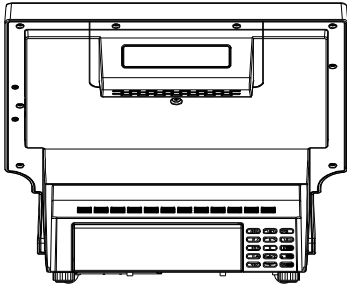
This chapter shows the exploded diagrams and part numbers of PA-3310 components.

1-2. POS SYSTEM ILLUSTRATION

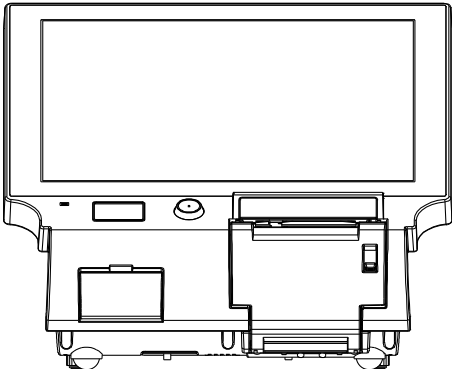
Top View



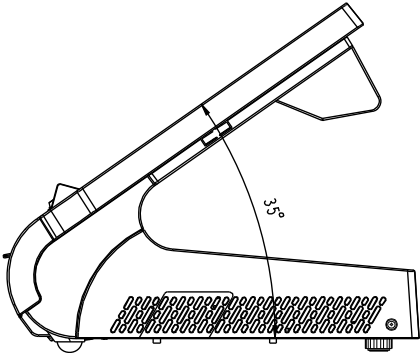
Rear View



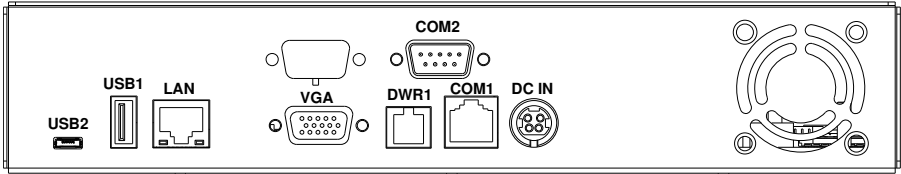
Front View



Side View



IO View



Unit: mm

1-3. SYSTEM SPECIFICATIONS

System

CPU	NVIDIA® Tegra® 3
Memory	DDR3 1GB
OS Support	Android 4.2
Power Supply	72 Watt power adapter
Power Consumption	<ul style="list-style-type: none"> ▪ System off: 2.2W ▪ System idle: 20W (Panel backlight is on.) ▪ System running: 32W (Printer+ VFD + MSR) ▪ System full-loading: 49W (Printer + VFD + MSR + USB + COM)
Flash	eMMC 8GB
SD	Standard SDHC (up to 32GB)
VFD	20 columns & 2 lines. Each column allows 5x7 dots 1 st character to 20 th character speed: 360mm/sec.
MSR	JIS I & II; ISO I & II & III tracks, support i-Button reader.
Printer	2”/3” thermal printer with auto-cutter. <ul style="list-style-type: none"> ▪ 2” speed: 200mm/sec. ▪ 3” speed: 170mm/sec.
Color	Top/Bottom: Deep grey
System Weight	<ul style="list-style-type: none"> ▪ Without power adapter: approx. 6.5 kg ▪ With power adapter: approx. 7.5 kg
Dimension (W x H x D)	390mm x 320mm x 190mm
Certificate	FCC/CE/LVD

I/O Ports

Serial Port	<ul style="list-style-type: none">▪ 1 x DB-9 (COM2)▪ 1 x RJ45 (COM1), supports embedded VFD▪ 3 x Wafer on board:<ul style="list-style-type: none">- Co-lay COM2- COM4 supports embedded printer- COM5 supports embedded MSR▪ 5/12V Selectable (COM1/2/5)
USB	<ul style="list-style-type: none">▪ 2 x USB2.0 (1 x USB Type A; 1 x Micro USB)▪ 1 x USB2.0 on side bezel (USB Type A)
LAN	1 x 10/100 Mbps
VGA	1 x DB-15 VGA Interface

Display

LCD	15" TFT XGA
Max. Resolution	1024 x 768
Pixel Pitch	0.297 (W) x 0.297 (H)
Signal Interface	TTL (24-bit)
Tilt Angel	24~28°
Touch Panel	15" 5-wire bezel-free resistive

Environment

Temperature	<ul style="list-style-type: none">▪ Operation: 0~35°C (32~95°F)▪ Storage: -20~60°C (-4~140°F)
Humidity	10~90% (without frosting)

1-4. SAFETY PRECAUTIONS

The following messages are safety reminders on how to protect your systems from damages, and extending the life cycle of the system.

1. Check the Line Voltage

- a. The operating voltage for the power supply should be within the range of 100V to 240V AC; otherwise the system may be damaged.

2. Environmental Conditions

- a. Place your PA-3310 on a sturdy, level surface. Be sure to allow enough space around the system to have easy access needs.
- b. Avoid installing your PA-3310 Series POS system in extremely hot or cold places.
- c. Avoid exposure to sunlight for a long period of time (for example, in a closed car in summer time. Also avoid the system from any heating device.). Or do not use the PA-3310 when it has been left outdoors in a cold winter day.
- d. Bear in mind that the operating ambient temperature is between 0°C and 35°C (32°F and 95°F).
- e. Avoid moving the system rapidly from a hot place to a cold place, and vice versa, because condensation may occur inside the system.
- f. Protect your PA-3310 against strong vibrations, which may cause hard disk failure.
- g. Do not place the system too close to any radio-active device. Radio-active device may cause signal interference.
- h. Always shutdown the operation system before turning off the power.

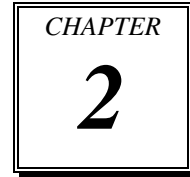
3. Handling

- a. Avoid placing heavy objects on the top of the system.
- b. Do not turn the system upside down. This may cause the hard drive to malfunction.
- c. Do not allow any objects to fall into this product.
- d. If water or other liquid spills into the product, unplug the power cord immediately.

4. Good Care

- a. When the outside case gets stained, remove the stains using neutral washing agent with a dry cloth.
- b. Never use strong agents such as benzene and thinner to clean the surface of the case.
- c. If heavy stains are present, moisten a cloth with diluted neutral washing agent or alcohol and then wipe thoroughly with a dry cloth.
- d. If dust is accumulated on the case surface, remove it by using a special vacuum cleaner for computers.

SYSTEM CONFIGURATION



Helpful information that describes the jumper and connector settings, component locations, and pin assignment.

Sections included:

- Jumper & Connector Quick Reference Table
- How to Set Jumpers
- Component Locations & Jumper Settings
 - Main Board (External I/O ports & other components)
 - Printer Board
 - VFD Board
 - MSR Board

2-1. JUMPER & CONNECTOR QUICK REFERENCE TABLE

Mainboard (PB-6810)

JUMPER/CONNECTOR	NAME	PAGE
Power Button	SW1-2	2-7
DC In Port	DC_IN1	2-7
Cash Drawer Port	DRW1	2-8
COM Port	COM1, COM2	2-8
VGA Port	VGA1	2-9
USB Port	USB1, USB2, USB3	2-10
LAN Port	CN_LAN1	2-11
COM Connector	COM2-2, COM4, COM5, DEBUG-COM3	2-12
COM Port RI and Voltage Selection	JP_COM1, JP_COM2, JP_COM5, JP_DEBUG1	2-13
USB Connector	USB1-2, USB2-2, USB3-2	2-14
Cash Drawer Power Selection	JP5	2-15
SPI EEPROM Selection	JP8	2-15
Backlight Type Selection	JP1	2-16
Touch Function & USB Channel Selection	JP9, JP10	2-16
HSIC USB-CLK Selection	JP2, JP3	2-17
LED Connector	PWR_LED1-1	2-17
Power for Thermal Printer Connector	PRT_PWR1	2-18
External Speaker Connector	SPK1-1	2-18
LVDS Connector	LVDS1	2-19
Touch Panel Connector	TOUCH1-1	2-19
LAN EEPROM I/F Connector	EEPROM_CN1	2-20
Speaker Connector	DC12V_PWR1	2-20
Reset Button	RST_SW1	2-20
Volume Adjustor	VOL_N_SW1, VOL_P_SW1	2-21
Recovery Button	SW4	2-21

JUMPER/CONNECTOR	NAME	PAGE
Antenna Connector	JA1	2-22
SD Card Slot	SD_CARD1	2-22

Printer Board

JUMPER/CONNECTOR	NAME	PAGE
Power Supply Connector	24V_CN1	2-24
Thermal Head/Motor/Sensor Connector	PRINT_CN1	2-24
RS-232 Interface Connector	COM1	2-26
Auto-cutter Connector	CUT_CN1	2-27

VFD Board

JUMPER/CONNECTOR	NAME	PAGE
Power Switch Selection	JP12V_SEL1	2-29
Power Switch	CN2	2-29
RS-232 Serial Interface	CN1	2-30

MSR Board

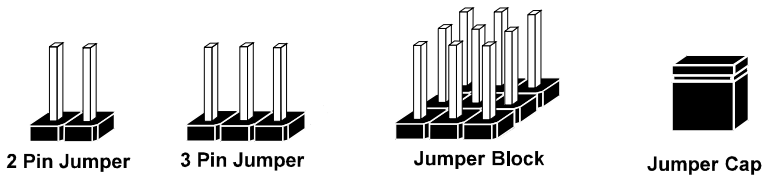
JUMPER/CONNECTOR	NAME	PAGE
Decoder Connector	MAG_CN1	2-32
Debug Port	DEG1	2-32
Key Connector	I_BUTTON1	2-32
Output Connector	IO1	2-33

2-2. HOW TO SET JUMPERS

You can configure your board by setting the jumpers. A jumper consists of two or three metal pins with a plastic base mounted on the card, and by using a small plastic "cap", also known as the jumper cap (with a metal contact inside), you are able to connect the pins. So you can set-up your hardware configuration by "opening" or "closing" pins.

Jumpers can be combined into sets that called jumper blocks. When jumpers are all in the block, you have to put them together to set up the hardware configuration. The figure below shows what this looks like.

JUMPERS AND CAPS

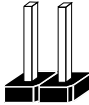


If a jumper has three pins for example, labelled PIN1, PIN2, and PIN3. You can connect PIN1 & PIN2 to create one setting and shorting. You can either connect PIN2 & PIN3 to create another setting. The same jumper diagrams are applied all through this manual. The figure below shows what the manual diagrams look and what they represent.

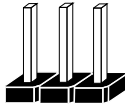
JUMPER DIAGRAMS



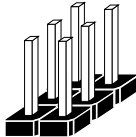
Jumper Cap looks like this



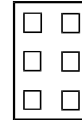
2 pin Jumper looks like this



3 pin Jumper looks like this



Jumper Block looks like this



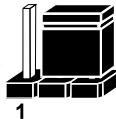
JUMPER SETTINGS



2 pin Jumper closed(enabled)
looks like this



1



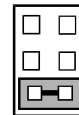
3 pin Jumper
2-3 pin closed(enabled)
looks like this



1



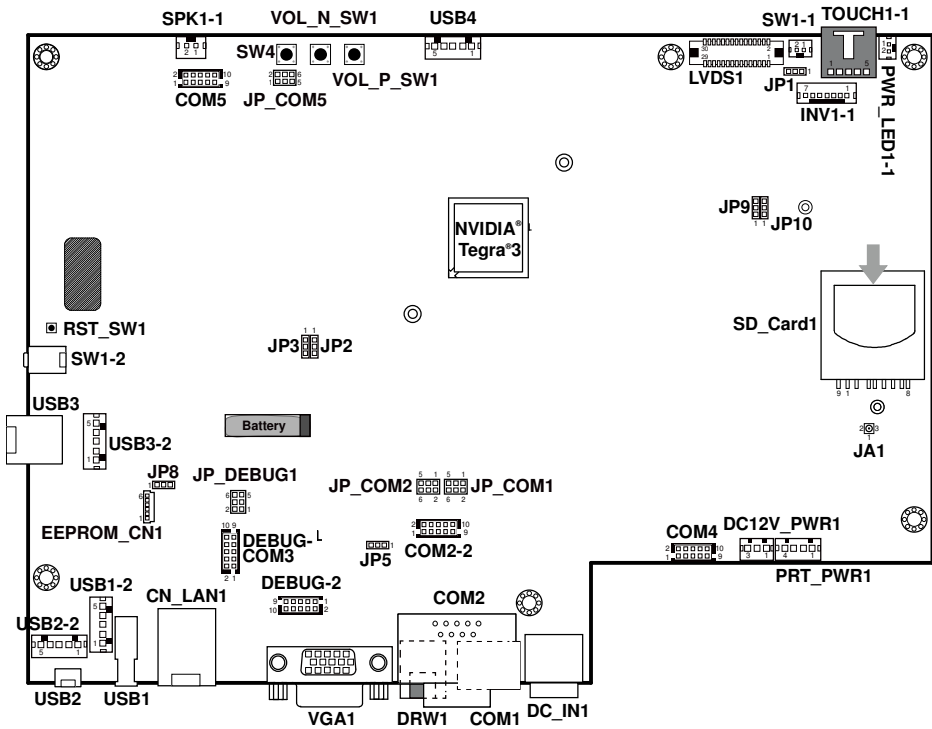
Jumper Block
1-2 pin closed(enabled)
looks like this



1 2

2-3. MAIN BOARD COMPONENT LOCATIONS & JUMPER SETTINGS

M/B: PB-6810



PA-3310 Main Board Component Locations

2-3-1. External I/O Ports

2-3-1-1. Power Button

Follow the instruction below to use the power button.



SW1-2

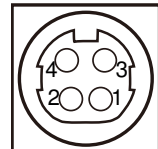
- To turn on the system, press the power button briefly.
- During normal operation, you can press the power button briefly to turn off the panel backlight. When you next briefly press the power button, the LCD backlight will turn on again.
- To turn off the system, press and hold the power button for 2 seconds. Then the system will ask for your confirmation by prompting a message of power-off.

2-3-1-2. DC IN Port

DC_IN1: DC Power-In Port

The pin assignments are as follows:

PIN	ASSIGNMENT
1	GND
2	GND
3	+24V
4	+24V



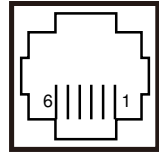
DC_IN1

2-3-1-3. Cash Drawer Port

DRW1: Cash Drawer Port

The pin assignments are as follows:

PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	GND	4	+12V/+24V (Max. current: 1A)
2	Drawer Open	5	NC
3	Drawer Sense	6	GND



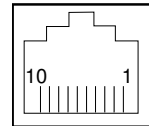
DRW1

2-3-1-4. COM Port

COM1: RJ45 Serial Port, supporting VFD

The pin assignments are as follows:

PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	NC	6	NC
2	RXD	7	RTS
3	TXD	8	CTS
4	NC	9	RI/+5V/+12V selectable (Max. current: 1A)
5	GND	10	NC

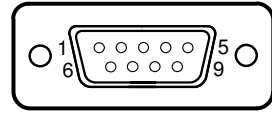


COM1

COM2: D-Sub9 Serial Port, co-lay with COM2-2

The pin assignments are as follows:

PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	DCD	6	DSR
2	RXD	7	RTS
3	TXD	8	CTS
4	DTR	9	RI/+5V/+12V selectable (Max. current: 1A)
5	GND		



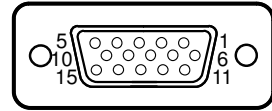
COM2

2-3-1-5. VGA Port

VGA1: VGA Port

The pin assignments are as follows:

PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	RED	9	+5V
2	GREEN	10	GND
3	BLUE	11	NC
4	NC	12	SDA
5	GND	13	HSYNC
6	GND	14	VSYNC
7	GND	15	SCL
8	GND		



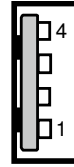
VGA1

2-3-1-6. USB Port

USB1, USB3: USB Type A Ports

The pin assignments are as follows:

PIN	ASSIGNMENT
1	+5V (Max. current: 0.5A)
2	DM
3	DP
4	GND



USB1



USB3

USB2: Micro-USB Port

The pin assignments are as follows:

PIN	ASSIGNMENT
1	+5V (Max. current: 0.5A)
2	DM
3	DP
4	ID
5	GND



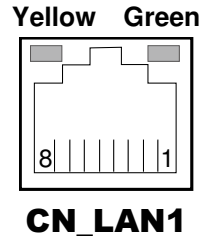
USB2

2-3-1-7. LAN Port

CN_LAN1: RJ45 LAN Port

The pin assignments are as follows:

PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	TXD+	5	NC
2	TXD-	6	RXD-
3	RXD+	7	NC
4	NC	8	NC



LAN LED Indicator:

Left Side LED

Yellow Color Blinking	LAN Message Active
Off	No LAN Message Active

Right Side LED

Green Color On	10/100Mbps LAN Speed Indicator
Off	No LAN switch/ hub connected.

2-3-2. Other Components on Main Board

2-3-2-1. COM Connector

COM2-2: Serial Port Wafer

The pin assignments are as follows:

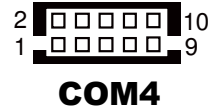
PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	DCD	6	DSR
2	RXD	7	RTS
3	TXD	8	CTS
4	DTR	9	RI/+5V/+12V selectable (Max. current: 1A)
5	GND	10	NC



COM4: Serial Port Wafer

The pin assignments are as follows:

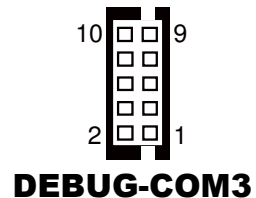
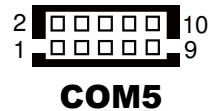
PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	NC	6	NC
2	RXD	7	RTS
3	TXD	8	CTS
4	NC	9	NC
5	GND	10	NC



COM5, DEBUG-COM3: Serial Port Wafers

The pin assignments are as follows:


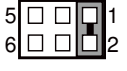
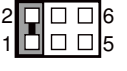
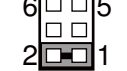



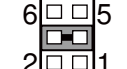
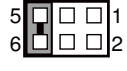
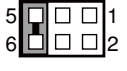
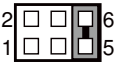
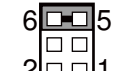
PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	NC	6	NC
2	RXD	7	RTS
3	TXD	8	CTS
4	NC	9	RI/+5V/+12 selectable (Max. current: 1A)
5	GND	10	NC



2-3-2-2. COM Port RI & Voltage Selection

JP_COM1, JP_COM2, JP_COM5, JP_DEBUG1: COM RI & Voltage Selection

The jumper settings are as follows:

SELECTION	JUMPER SETTING	JUMPER ILLUSTRATION			
RI	1-2	 <p>JP_COM1</p>	 <p>JP_COM2 (Default)</p>	 <p>JP_COM5</p>	 <p>JP_DEBUG1 (Default)</p>
12V	3-4	 <p>JP_COM1 (Default, supports VFD)</p>	 <p>JP_COM2</p>	 <p>JP_COM5</p>	 <p>JP_DEBUG1</p>
5V	5-6	 <p>JP_COM1</p>	 <p>JP_COM2</p>	 <p>JP_COM5 (Default, supports MSR)</p>	 <p>JP_DEBUG1</p>

2-3-2-3. USB Connector

USB1-2 & USB3-2: USB Wafers

The pin assignments are as follows:

PIN	ASSIGNMENT
1	DM
2	DP
3	GND
4	+5V (Max. current: 0.5A)
5	GND

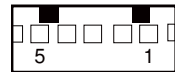


**USB1-2/
USB3-2**

USB2-2: USB Wafer

The pin assignments are as follows:

PIN	ASSIGNMENT
1	DM
2	DP
3	ID
4	+5V (Max. current: 0.5A)
5	GND

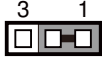



USB2-2

2-3-2-4. Cash Drawer Power Selection

JP5: Cash Drawer Power Selection

The jumper settings are as follows:



SELECTION	JUMPER SETTING	JUMPER ILLUSTRATION
+24V	1-2	 <p>JP5</p>
+12V	2-3	 <p>JP5</p>

Note: Manufacturing Default is +12V.

2-3-2-5. SPI EEPROM Selection

JP8: Pin Header for SPI EEPROM Selection

The jumper settings are as follows:

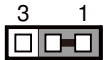
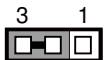
SELECTION	JUMPER SETTING	JUMPER ILLUSTRATION
Programming EEPROM	1-2	 <p>JP8</p>
Normal	2-3	 <p>JP8</p>

Note: Manufacturing Default is Normal.

2-3-2-6. Backlight Type Selection

JP1: Pin Header for Backlight Type Selection

The jumper settings are as follows:

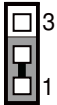
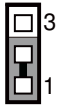
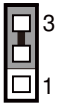
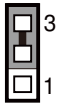
SELECTION	JUMPER SETTING	JUMPER ILLUSTRATION
LED	1-2	 JP1
CCFL	2-3	 JP1

Note: Manufacturing Default is LED.

2-3-2-7. Touch Function & USB Channel Selection

JP9, JP10: Pin Header for Touch Function & USB Channel Selection

The jumper settings are as follows:









SELECTION	JUMPER SETTING	JUMPER ILLUSTRATION	
To USB4	JP9: 1-2 JP10: 1-2	 JP9	 JP10
To R-Touch Controller	JP9: 2-3 JP10: 2-3	 JP9	 JP10

Note: Manufacturing Default is To R-Touch Controller.

2-3-2-8. HSIC USB-CLK Selection

JP2, JP3: Pin Header for HSIC USB-CLK Selection

The jumper settings are as follows:

SELECTION	JUMPER SETTING	JUMPER ILLUSTRATION	
38.4 MHz	JP2: 1-2 JP3: 1-2		
26.0 MHz	JP2: 1-2 JP3: 2-3		
19.2 MHz	JP2: 2-3 JP3: 1-2		
12.0 MHz	JP2: 2-3 JP3: 2-3		

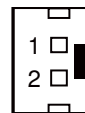
Note: Manufacturing Default is 26.0 MHz.

2-3-2-9. LED Connector

PWR_LED1-1: Power Indication LED Wafer

The pin assignments are as follows:

PIN	ASSIGNMENT
1	GND
2	+5V



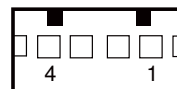
PWR_LED1-1

2-3-2-10. Power For Thermal Printer Connector

PRT_PWR1: Power for Thermal Printer Wafer

The pin assignments are as follows:

PIN	ASSIGNMENT
1	+24V
2	+24V
3	GND
4	GND



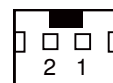
PRT_PWR1

2-3-2-11. External Speaker Connector

SPK1-1: External Speaker Wafer

The pin assignments are as follows:

PIN	ASSIGNMENT
1	SPO+
2	SPO-



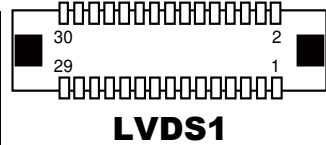
SPK1-1

2-3-2-12. LVDS Connector

LVDS1: LVDS Wafer

The pin assignments are as follows:

PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	LVDS_VCC	16	LVDS_CLKOUT+
2	GND	17	LVDS_CLKOUT-
3	NC	18	GND
4	NC	19	LVDS_TX2+
5	GND	20	LVDS_TX2-
6	NC	21	GND
7	NC	22	LVDS_TX1+
8	GND	23	LVDS_TX1-
9	NC	24	GND
10	NC	25	LVDS_TX0+
11	NC	26	LVDS_TX0-
12	NC	27	LVDS_TX3+
13	NC	28	LVDS_TX3-
14	NC	29	LVDS_VCC
15	GND	30	LVDS_VCC

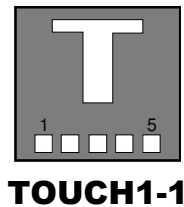


2-3-2-13. Touch Panel Connector

TOUCH1-1: Touch Panel Wafer

The pin assignments are as follows:

PIN	ASSIGNMENT
1	LR (Low Right)
2	LL (Low Left)
3	Probe
4	UR (Up Right)
5	UL (Up Left)

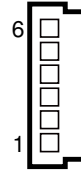


2-3-2-14. LAN EEPROM I/F Connector

EEPROM_CN1: LAN EEPROM I/F Wafer

The pin assignments are as follows:

PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	GND	4	EEDI
2	EECS	5	NC
3	EECK	6	+3.3V



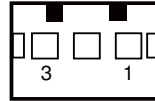
EEPROM_CN1

2-3-2-15. Speaker Connector

DC12V_PWR1: Speaker wafer

The pin assignments are as follows:

PIN	ASSIGNMENT
1	+12V
2	GND
3	+12V



DC12V_PWR1

2-3-2-16. Reset Button

RST_SW1: Reset Button

The pin assignments are as follows:

ACTION	ASSIGNMENT
Click	0V
Release	+3.3V



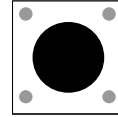
RST_SW1

2-3-2-17. Volume Adjustor

VOL_N_SW1: Volume Down Adjustor

The pin assignments are as follows:

ACTION	ASSIGNMENT
Click	Volume down
Release	N/A



**VOL_N_SW1/
VOL_P_SW1**

VOL_P_SW1: Volume Up Adjustor

The pin assignments are as follows:

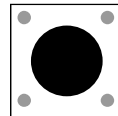
ACTION	ASSIGNMENT
Click	Volume up
Release	N/A

2-3-2-18. Recovery Button

SW4: Recovery Button

The pin assignments are as follows:

ACTION	ASSIGNMENT
Click	0V
Release	+3.3V



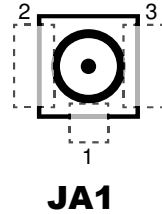
SW4

2-3-2-19. Antenna Connector

JA1: Antenna Connector

The pin assignments are as follows:

PIN	ASSIGNMENT
1	Signal
2	GND
3	GND

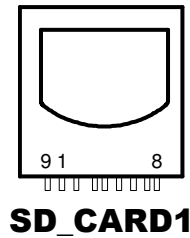


2-3-2-20. SD Card Slot

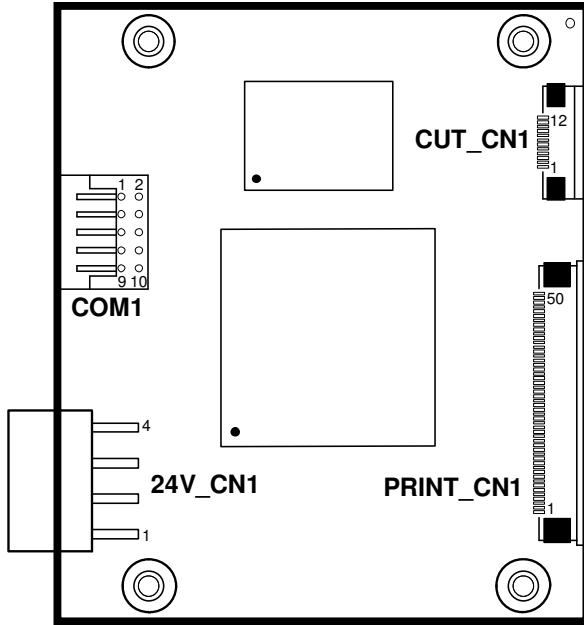
SD_CARD1: SD Card Slot

The pin assignments are as follows:

PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	Data3	7	Data0
2	CMD	8	Data1
3	GND	9	Data2
4	3.3V	10	CD_SW1
5	CLK	11	SW3_COM
6	GND	12	WP_SW2



2-4. PRINTER BOARD COMPONENT LOCATIONS & JUMPER SETTINGS



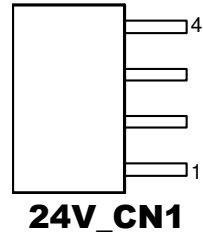
PA-3310 Printer Board Component Locations

2-4-1. Power Supply Connector

24V_CN1: Power Supply Wafer

The pin assignments are as follows:

PIN	ASSIGNMENT	I/O	FUNCTION
1	GND	-	GND
2	GND	-	GND
3	24V	I	24V
4	24V	I	24V

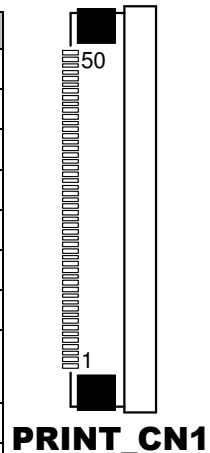


2-4-2. Thermal Head/Motor/Sensor Connector

PRINT_CN1: Thermal Head/Motor/Sensor Wafer

The pin assignments are as follows:

PIN	ASSIGNMENT	I/O	FUNCTION
1	24V	O	Head drive power
2	24V	O	Head drive power
3	24V	O	Head drive power
4	24V	O	Head drive power
5	24V	O	Head drive power
6	24V	O	Head drive power
7	DAT	O	Print data output
8	CLK	O	Synchronizing signal for print data transfer
9	GND	-	Head GND
10	GND	-	Head GND
11	GND	-	Head GND
12	GND	-	Head GND
13	GND	-	Head GND



PIN	ASSIGNMENT	I/O	FUNCTION
14	GND	-	Head GND
15	NC	-	Unused
16	DST4	O	Head strobe signal
17	DST3	O	Head strobe signal
18	3.3V	-	Logic Power
19	GND	-	Thermistor GND
20	GND	-	Thermistor GND
21	TH	I	Thermistor signal
22	NC	-	Unused
23	DST2	O	Head strobe signal
24	DST1	O	Head strobe signal
25	GND	-	Head GND
26	GND	-	Head GND
27	GND	-	Head GND
28	GND	-	Head GND
29	GND	-	Head GND
30	GND	-	Head GND
31	!LATCH	O	Print data latch
32	24V	O	Head drive power
33	24V	O	Head drive power
34	24V	O	Head drive power
35	24V	O	Head drive power
36	24V	O	Head drive power
37	24V	O	Head drive power
38	NC	-	Unused
39	PS	I	Signal of the out-of-paper sensor
40	Vps	O	Power supply of the out-of-paper sensor

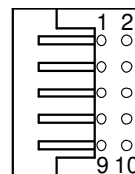
PIN	ASSIGNMENT	I/O	FUNCTION
41	GND	-	GND of the platen position/ out-of-paper sensor
42	HS	I	Signal of the platen position sensor
43	NC	-	Unused
44	FG	-	Frame GND
45	FG	-	Frame GND
46	NC	-	Unused
47	2A	O	Motor drive signal
48	1B	O	Motor drive signal
49	1A	O	Motor drive signal
50	2B	O	Motor drive signal

2-4-3. RS-232 Interface Connector

COM1: RS-232 Interface Connector

The pin assignments are as follows:

PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	NC	6	DSR/CTS
2	RXD	7	RTS
3	TXD	8	CTS
4	DTR/RTS	9	NC
5	GND	10	NC



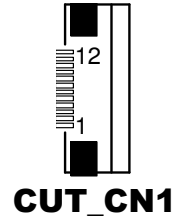
COM1

2-4-4. Auto-Cutter Connector

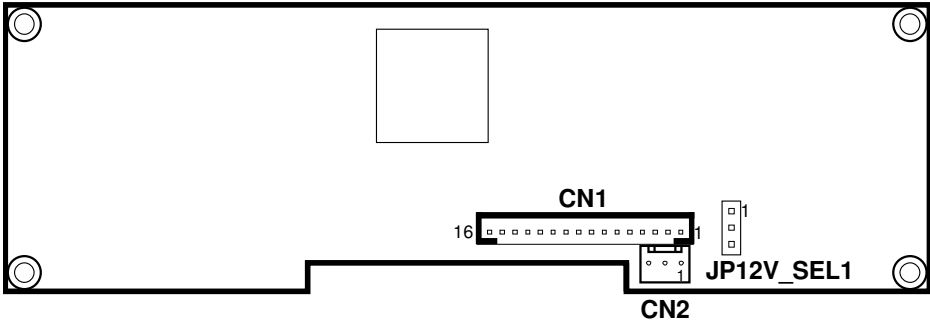
CUT_CN1: Auto-cutter Wafer

The pin assignments are as follows:

PIN	ASSIGNMENT	I/O	FUNCTION
1	NC	-	Unused
2	Vcs	O	Power supply of the home position sensor
3	GND	-	GND of the home position sensor
4	CUTS	I	Signal of the hom position sensor
5	2B-1	O	Auto-cutter motor drive signal
6	2B-2	O	Auto-cutter motor drive signal
7	2A-1	O	Auto-cutter motor drive signal
8	2A-2	O	Auto-cutter motor drive signal
9	1B-1	O	Auto-cutter motor drive signal
10	1B-2	O	Auto-cutter motor drive signal
11	1A-1	O	Auto-cutter motor drive signal
12	1A-2	O	Auto-cutter motor drive signal



2-5. VFD BOARD COMPONENT LOCATIONS & JUMPER SETTINGS





PA-3310 VFD Board Component Locations

2-5-1. Power Switch Selection

JP12V_SEL1: Power Switch Selection

The jumper settings are as follows:

SELECTION	JUMPER SETTING	JUMPER ILLUSTRATION
OFF	1-2	 <p>JP12V_SEL1</p>
ON	2-3	 <p>JP12V_SEL1</p>

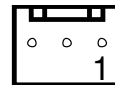
Note: Manufacturing Default is ON.

2-5-2. Power Switch

CN2: Power Switch

The pin assignments are as follows:

PIN	ASSIGNMENT
1	High Level
2	NC
3	Low Level



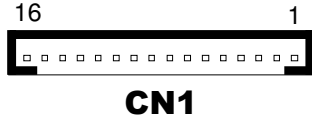
CN2

2-5-3. RS-232 Serial Interface

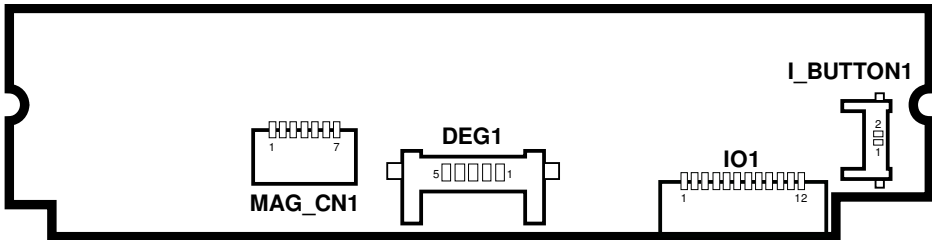
CN1: RS-232 Serial Interface wafer

The pin assignments are as follows:

PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	GND	11	NC
2	TXD	12	NC
3	RXD	13	NC
4	DTR	14	NC
5	DSR	15	NC
6	RTS	16	NC
7	CTS	17	NC
8	+12V/+5V	18	NC



2-6. MSR BOARD COMPONENT LOCATIONS & JUMPER SETTINGS



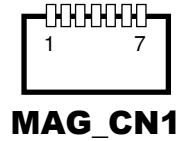
PA-3310 MSR Board Component Locations

2-6-1. Decoder Connector

MAG_CN1: Decoder Wafer

The pin assignments are as follows:

PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	HDC2	5	GND
2	HDC1	6	HDA2
3	HDB2	7	HDA1
4	HDB1		

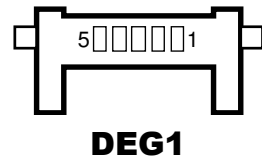


2-6-2. Debug Connector

DEG1: Debug Port Wafer

The pin assignments are as follows:

PIN	ASSIGNMENT
1	TX
2	RX
3	NC
4	GND
5	+5V

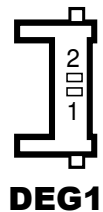


2-6-3. Key Connector

I_BUTTON1: Key Wafer

The pin assignments are as follows:

PIN	ASSIGNMENT
1	I_B1
2	GND

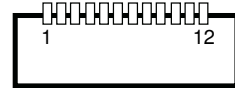


2-6-4. Output Connector

IO1: Output wafer

The pin assignments are as follows:

PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	CLK_KB	7	RX_MSR
2	CLK_PC	8	TX_MSR
3	DATA_KB	9	GND
4	DATA_PC	10	USB_D+_R
5	+5V	11	USB_D-_R
6	CHASSIS GND	12	GND



IO1

SOFTWARE UTILITIES

CHAPTER

3

This chapter provides the detailed information for you to operate the system applications.

Sections included:

- Version List
- OS API
- Firmware Control Command
 - Printer Board
 - VFD Board
 - MSR Board
- Utility Update
 - OS
 - Printer Board
 - VFD Board
 - MSR Board

3-1. VERSION LIST

Category	Item	Version	Release date	Image Name
System Platform	Android	4.2.1	2013/8/26	I70-3310-000-01-130823
	Kernel	3.1.1		
Android Bundled AP	Browser			
	Calculator			
	Calendar			
	Clock			
	Downloads			
	Email			
	Gallery			
	Music			
	People			
	Search			
Settings				
Added AP	eGalaxCalibrator	0.0.9		
	OI File Manager	2.0.2		
Updated AP	MB-1030 Printer Update Application	1.0		
	MB-3013 MSR Update Application	1.0		
	MB-4103 VFD Update Application	1.0		
	Recovery	1.0		
OS API	MainActivity	A01-6610-000-000-130618		
Firmware	Printer Board Firmware	F00-1030-000-01-130318		
	MSR Board Firmware	F00-3013-000-03-130529		
	VFD Board Firmware	F00-4103-000-01-130328		

Note: Cut off the power for mandatory shutdown but if you perform that constantly, it may bring about system damage. All the software utilities installed in the system are provided for free. Protech Systems won't take responsibility for any loss or damage caused.

3-2. OS API

3-2-1. Programming Guide

1. Create a new project in Eclipse.
2. Copy provided JAR file (CashDrawer.jar, SAPI.jar, VFD.jar) into the path below:
Libs
 - CashDrawer.jar
 - VFD.jar
 - SAPI.jar
 - Msr.jar
 - ThermalPrinter.jar
3. In Libraries tab of the target project's properties, confirm that the JAR file you added (CashDrawer.jar SAPI.jar VFD.jar) is registered in [Java Build Path]. If it has not been added, add the JAR file into build path using [Add Jars...].
4. Copy the library file (libeposprint.so) into following path:
Libs
 - armeabi
 - |_ libgpio_control.so
 - |_ libserial_port.so

Import Function Declare:

```
import android.VFD.VFD;  
import android.VFD.Msr;  
import android.CashDrawer.CashDrawer;  
import android.ThermalPrinter.ThermalPrinter;
```

3-2-2. API Reference

3-2-2-1. Cash Drawer API

OpenCashDrawer

```
Public Boolean OpenCashDrawer();
```

Purpose Open the cash drawer API.
Return True (1) on success, False (0) on failure

Example

```
boolean ControlResult = false;
ControlResult = CDrawer.OpenCashDrawer();
if(ControlResult)
    //"Cash Drawer Control Success!"
else
    //"Cash Drawer Control Failure!"
```

GetCashDrawerStatus

```
Public Boolean GetCashDrawerStatus ();
```

Purpose Get the cash drawer status.
Value Put value to Function, than get CashdrawerStatus back.
Return True (1) on success, False (0) on failure False (0)

Example

```
boolean ControlResult = false;
CashDrawer CDrawer =newCashDrawer();
ControlResult = CDrawer.GetCashDrawerStatus();
if(ControlResult)
    //"Cash Drawer Status Open !"
else
    //"Cash Drawer Status Close !"
```

3-2-2-2. VFD API

OpenVFD

Public Boolean OpenVFD(int BuaRate)

Purpose	Open the VFD Port.
Value	Set VFD Baud Rate; MB-4103 default baud rate is 9600;
Return	True (1) on success, False (0) on failure

CloseVFD

Public Boolean CloseVFD();

Purpose	Close the VFD Port.
Return	True (1) on success, False (0) on failure False (0)

SendCommand

Public Boolean SendCommand(byte[] data);

Purpose	Send Command to VFD.
Value	VFD Command Code. ESC/POS Command.
Return	True (1) on success, False (0) on failure False (0)
Example	VFD – Clear VFD Command (EPSON Command) //Initialize a VFD class instance VFD VFD_Control = new VFD(); VFD_Control.OpenVFD(9600); byte[] data = newbyte[1]; data[0] = 0x0C; VFD_Control.SendCommand(data); VFD_Control.CloseVFD();

3-2-2-3. MSR API

OpenMSR

Public Boolean OpenMSR (int BaudRate)

Purpose	Open theMSR Port.
Value	Set Msr BaudRate; MJR243R baud rate default is 19200;
Return	True (1) on success, False (0) on failure

CloseMSR

Public Boolean CloseMSR();

Purpose	Close the MSR Port.
Return	True (1) on success, False (0) on failure False (0)

SendCommand

Public Boolean SendCommand (byte[] data);

Purpose	Send Command to MSR.
Value	Msr Command Code.
Return	True (1) on success, False (0) on failure False (0)
Example	Msr – Send Command to Msr <i>//Initialize a VFD class instance</i> Msr Msrcontrol = newMsr (); Msrcontrol.OpenMSR(19200); byte[] data = newbyte[1]; data[0] = 0x0C; Msrcontrol.SendCommand(data);

Receiver Data - Attach

Public Boolean Attach();

Purpose Receive Msr Data
Return True (1) on success, False (0) on failure False (0)
Example Receive Data from MSR.
 Before use this function need to implements
 ObserverInterface.
 Observer = Current class.

```

publicclass MsrActivity extends Activity implements
android.Msr.Observer {
  EditText mReception;
  Msr Msrcontrol ;
  @Override
  protectedvoid onCreate(Bundle savedInstanceState) {
    super.onCreate(savedInstanceState);
    setContentView(R.layout.activity_msr);

    mReception = (EditText)
    findViewById(R.id.EditTextReception);
    Msrcontrol = new Msr();
    Msrcontrol.OpenMSR(115200);Msrcontrol.Attach(this);
    @Override
    publicvoid Update(finalbyte[] buffer, finalint size)
    {runOnUiThread(new Runnable() {
    publicvoid run() {
    if (mReception != null) {
    mReception.append(new String(buffer, 0, size));
    }
    }
    });
  }
}

```

```

    }
    When Close:
    Msrcontrol.CloseMSR();Msrcontrol.Detach(this);

```

Receiver Data - Detach

Public Boolean Detach();

Purpose Cancel Obsver from Msr Data
Return True (1) on success, False (0) on failure False (0)

Update Event

Public Void Update(final byte[] buffer, final int size);

Purpose Get Msr Data String
Return byte[] buffer = Msr data
 int size = buffer count.
 Before using this function, implements Observer Interface.
 Observer = Current class.

Example:

```

@Override
publicvoid Update(finalbyte[] buffer, finalint size)
{runOnUiThread(new Runnable() {
publicvoid run() {
if (mReception != null) {
String MsrString =new String(buffer, 0, size);
}
}
}
}

```

3-2-2-4. Thermal Printer API

OpenPrinter

Public Boolean OpenPrinter (int Baudrate)

Purpose Open theThermal Printer Port.
Value Set Printer Baud Rate; MB-1030 baud rate default is 115200;
Return True (1) on success, False (0) on failure

ClosePrinter

Public Boolean ClosePrinter();

Purpose Close the Thermal Printer Port.
Return True (1) on success, False (0) on failure False (0)

CutPaper

Public BooleanCutPaper(int type);

Purpose Cut paper function.
Value Type = 1 (Full cut) 2(Partial cut)
Return True (1) on success, False (0) on failure False (0)

Text

Public BooleanText(String data);

Purpose Print string data to print.
Value Data = String data.
Return True (1) on success, False (0) on failure False (0)
Example ThermalPrinterPrinter_Control = newThermalPrinter();
Printer_Control.OpenPrinter(115200);
Printer_Control.Text("123456789");
Printer_Control.Text("\n");
Printer_Control.ClosePrinter();
//P.S If application want to line break. Please use "\n" to change line.

BarcodePrint

Public BooleanBarcodePrint(String Data,int Type,int Hri,int Width,int Height);

Purpose Print Barcode.

Value Data = Send barcode string data to printer.

Type = 1 UPC-A(1)

Type = 2 UPC-E(1)

Type = 3 EAN-13(1)

Type = 4 EAN-8(1)

Type = 5 CODE39(1)

Type = 6 ITF(1)

Type = 7 CODEBAR(1)

Type = 8 UPC-A(2)

Type = 9 UPC-E(2)

Type = 10 EAN-13(2)

Type = 11 EAN-8(2)

Type = 12 CODE39(2)

Type = 13 ITF(2)

Type = 14 CODABAR(2)

Type = 15 CODE93(2)

Type = 16 Code128(2)

Hri =

hri	Printing Position
0	No print
1	Above bar code
2	Below bar code
3,	Above and below bar code(both)

Width = $1 \leq n \leq 6$

Height = $1 \leq n \leq 255$

Return True (1) on success, False (0) on failure False (0)

LoadPicPrinter

Public Bitmap LoadPicPrinter (Bitmap data, boolean Halftone);

- Purpose** Prepare to load pic sent to printer.
Value Bitmap data (picture data)
Halftone = true or false (Enable or Disable)
Return Return Threshold Pic.

ImagePrinter

Public BooleanImagePrint(Bitmap data);

- Purpose** Sent bitmap to printer.
Value Bitmap data (Threshold data)
Return True (1) on success, False (0) on failure False (0)

SendCommand

Public Boolean SendCommand (byte[] data);

- Purpose** Send command byte to printer.
Value Command Code. Please refer [MP-1030 Command Manual](#)
Return True (1) on success, False (0) on failure False (0)
Example

```
ThermalPrinterPrinter_Control = new ThermalPrinter();  
Printer_Control.OpenPrinter(115200);  
byte[] data = new byte[2];  
data[0] = 0x1B;  
data[1] = 0x6d; //Partial cut  
Printer_Control.SendCommand(data);  
Printer_Control.ClosePrinter();
```

GetRealTimeStatus

```
Public intGetRealTimeStatus(int n );
```

Purpose Get Real Time Status.
Value Command Code. Please refer [MP-1030 Command Manual](#)
Return Real Time Status Byte.
Example

n = 2 : Off-line status.

Bit	On / Off	Hex	Decimal	Function
0	Off	00	0	Not used. Fixed to Off.
1	On	02	2	Not used. Fixed to On.
2	Off	00	0	Cover is closed.
	On	04	4	Cover is open.
3	Off	00	0	Not used. Fixed to Off.
4	On	10	16	Not used. Fixed to On.
5	Off	00	0	No paper-end stop.
	On	20	32	Printing stops due to paper end.
6	Off	00	0	No error.
	On	40	64	Error occurs.
7	Off	00	0	Not used. Fixed to Off.

```
Int RealTimeStatus = 0 ;
ThermalPrinterPrinter_Control = newThermalPrinter();
Printer_Control.OpenPrinter(115200);
RealTimeStatus = Printer_Control.GetRealTimeStatus(2);
// TODO Detect Status
Printer_Control.ClosePrinter();
```

GetPaperEndEvent

```
Public intGetPaperEndEvent();
```

Purpose Get Paper End Status.
Return 0x00 = Response Error 0x01 = Paper End, 0x02 = Paper Normal
Int PaperEndStatus= 0 ;
ThermalPrinterPrinter_Control = **new**ThermalPrinter();
Printer_Control.OpenPrinter(115200);

```

PaperEndStatus = Printer_Control.GetCoverEvent ();
// TODO Detect Status
if (PaperEndStatus== 1)
{
    Toast.makeText(PrinterActivity.this,
    "Paper End!", Toast.LENGTH_SHORT).show();
}
else
{
    Toast.makeText(PrinterActivity.this,
    "Paper Normal", Toast.LENGTH_SHORT).show();
}
Printer_Control.ClosePrinter();

```

GetCoverEvent

Public intGetCoverEvent();

Purpose

Get Cover Status.

Return

0x00 = Response Error 0x01 = Cover Open , 0x02 = Over Close

```

Int CoverStatus = 0 ;
ThermalPrinterPrinter_Control = newThermalPrinter();
Printer_Control.OpenPrinter(115200);
CoverStatus = Printer_Control.GetCoverEvent ();
// TODO Detect Status
if (CoverStatus == 1)
{
    Toast.makeText(PrinterActivity.this,
    "Cover Open!", Toast.LENGTH_SHORT).show();
}
else
{
    Toast.makeText(PrinterActivity.this,
    "Cover Close!", Toast.LENGTH_SHORT).show();
}
Printer_Control.ClosePrinter();

```

Receiver Data - Attach

Public Boolean Attach();

Purpose	Receive Printer Data
Return	True (1) on success, False (0) on failure False (0)
Example	Receive Data fromPrinter. Before use this function need to implements Observer Interface. Observer = Current class.

```

publicclass PrinterActivity extends Activity implements
android.ThermalPrinter.Observer {
    ThermalPrinter Printer_Control;
    @Override
    protectedvoid onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_msr);

        Printer_Control= newThermalPrinter();
        Printer_Control.Attach(this);
        If( !Printer_Control.OpenPrinter(115200))
        {
            //Port already open.
        }
        @Override
        publicvoid Update(finalint Device, finalintvalue)
        {runOnUiThread(new Runnable() {
        publicvoid run() {
            //Cover
            if(Device == 0x01)
            {
                if(Value==0x01)
                {

```

```
    //"Cover Open"
    }
    else
    {
    //"Cover Close"
    }
    }
    elseif (Device == 0x02)
    {
    //Paper
    if(Value==0x01)
    {
    //"No Paper Present"
    }
    else
    {
    //"Paper Present"
    }
    }
    });
    }
    }
    When Close:
    Printer_Control.ClosePrinter();Printer_Control.Detach(this);
```

Receiver Data - Detach**Public Boolean Detach();**

Purpose Cancel Obsver from Msr Data
Return True (1) on success, False (0) on failure False (0)

Update Event

Public Void Update(final int Device, final int Value);

Purpose Get Cover & Paper event

Return

Device	0x01(Cover)	0x02 (Paper)
Value	0x01(CoverOpen)	0x01(No Paper Present)
	0x02(CoverClose)	0x02(Paper Present)

GetFWVersion

Public String GetFWVSION();

Purpose Get FW Version

Return FW Version String.

GetCodePageVersion

Public String GetCodePageVersion();

Purpose Get CodePage Version

Return Code Page Version String.

3-3. FIRMWARE CONTROL COMMAND

3-3-1. Printer Board

1. COMMAND LIST

Standard commands

Control codes	Hexadecimal codes	Function
<LF>	0A	Line feed
<DLE EOT>	10 04	Real-time status transmission
<DLE DC4>	10 14	Real-time output of specified pulse
<ESC SP>	1B 20	Set character right space amount
<ESC !>	1B 21	Batch specify print mode
<ESC \$>	1B 24	Specify absolute position
<ESC ->	1B 2D	Specify/cancels underline mode
<ESC 2>	1B 32	Set default line spacing
<ESC 3>	1B 33	Set line feed amount
<ESC =>	1B 3D	Select peripheral device
<ESC @>	1B 40	Initialize printer
<ESC E>	1B 45	Specify/cancel emphasized printing
<ESC J>	1B 4A	Print and Paper Feed
<ESC m>	1B 4D	Select character font
<ESC R>	1B 52	Select international characters
<ESC \>	1B 5C	Specify relative position
<ESC a>	1B 61	Position alignment
<ESC c 3>	1B 63 33	Select paper out sensor to enable at paper out signal output
<ESC d>	1B 64	Print and feed paper n lines
<ESC i>	1B 69	Full cut
<ESC l>	1B 6D	Partial cut
<ESC p>	1B 70	Specify pulse
<ESC t>	1B 74	Select character code table
<ESC {>	1B 7B	Specify/cancel upside-down characters
<FS p>	1C 70	Print NV bit image
<FS q>	1C 71	Define NV bit image
<GS l>	1D 21	Select character size
<GS ^>	1D 2A	Define download bit images
<GS >>	1D 28	Test print
<GS />	1D 2F	Print download bit images
<GS B>	1D 42	Specify/cancel white/black inverted printing
<GS H>	1D 48	Select HRI character print position
<GS l>	1D 49	Send Printer ID
<GS L>	1D 4C	Set left margin
<GS P>	1D 50	Set basic calculated pitch
<GS V>	1D 56	Cut paper
<GS a>	1D 61	Enable/disable transmission of automatic status
<GS f>	1D 66	Select HRI character font
<GS h>	1D 68	Set bar code height
<GS k>	1D 6B	Print bar code
<GS r>	1D 72	Transmission of status
<GS v 0>	1D 76 30	Print raster bit images
<GS w>	1D 77	Set bar code horizontal size

Kanji Control Commands

Control codes	Hexadecimal codes	Function
<FS !>	1C 21	Batch specify Kanji character print mode
<FS &>	1C 26	Specify Kanji character mode
<FS .>	1C 2E	Cancel Kanji character mode

2. COMMAND NOTATION

[Name]	The name of the command.
[Format]	The code sequence. ASCII indicates the ASCII equivalents. Hex indicates the hexadecimal equivalents. Decimal indicates the decimal equivalents. [] k indicates the contents of the [] should be repeated k times.
[Range]	Gives the allowable ranges for the arguments.
[Description]	Describes the function of the command.

3. STANDARD COMMAND DETAILS

LF

[Name]	Print and line feed.
[Format]	ASCII LF Hex. 0A Decimal 10
[Range]	N/A
[Description]	This command prints the data in the print buffer and feeds one line based on the current set line spacing in standard mode.

DLE EOT n

[Name]	Real-time status transmission.
[Format]	ASCII OLE EOT n Hex. 10 04 n Decimal 16 4 n
[Range]	$1 \leq n \leq 4$

[Description]	Transmits the selected printer status specified by n in real time, according to the following parameters: n = 1 : Transmit printer status. n = 2 : Transmit off-line status. n = 3 : Transmit error status. n = 4 : Transmit paper roll sensor status.			
	n = 1 : Printer status.			
Bit	On / Off	Hex	Decimal	Function
0	Off	00	0	Not used. Fixed to Off.
1	On	02	2	Not used. Fixed to On.
2	Off	00	0	Drawer open/close signal is LOW.
	On	04	4	Drawer open/close signal is HIGH.
3	Off	00	0	On-line.
	On	08	8	Off-line.
4	On	10	16	Not used. Fixed to On.
5	Off	00	0	Not used. Fixed to Off.
6	Off	00	0	Not used. Fixed to Off.
7	Off	00	0	Not used. Fixed to Off.
	n = 2 : Off-line status.			
Bit	On / Off	Hex	Decimal	Function
0	Off	00	0	Not used. Fixed to Off.
1	On	02	2	Not used. Fixed to On.
2	Off	00	0	Cover is closed.
	On	04	4	Cover is open.
3	Off	00	0	Not used. Fixed to Off.
4	On	10	16	Not used. Fixed to On.
5	Off	00	0	No paper-end stop.
	On	20	32	Printing stops due to paper end.
6	Off	00	0	No error.
	On	40	64	Error occurs.
7	Off	00	0	Not used. Fixed to Off.
	n = 3 : Error status			
Bit	On / Off	Hex	Decimal	Function
0	Off	00	0	Not used. Fixed to Off.
1	On	02	2	Not used. Fixed to On.
2	Off	00	0	Not used. Fixed to Off.
3	Off	00	0	Not used. Fixed to Off.
4	On	10	16	Not used. Fixed to On.
5	Off	00	0	Not used. Fixed to Off.
6	Off	00	0	Not used. Fixed to Off.
7	Off	00	0	Not used. Fixed to Off.
	n = 4 : Continuous paper sensor status.			
Bit	On / Off	Hex	Decimal	Function
0	Off	00	0	Not used. Fixed to Off.
1	Off	02	2	Not used. Fixed to On.
2	Off	00	0	No paper-near-end stop.
	On	04	4	Printing stops due to paper near end.
3	Off	00	0	No paper-near-end stop.
	On	08	8	Printing stops due to paper near end.
4	On	10	16	Not used. Fixed to On.
5	Off	00	0	No paper-end stop.
	On	20	32	Printing stops due to paper end.
6	Off	00	0	No paper-end stop.
	On	40	64	Printing stops due to paper end.
7	Off	00	0	Not used. Fixed to Off.

DLE DC4 n m t

[Name]	Real-time output of specified pulse.
[Format]	ASCII DLE DC4 n m t Hex. 10 14 n m t Decimal 16 20 n m t
[Range]	n = 1 m = 0,1 1 ≤ t ≤ 8
[Description]	This outputs a signal specified by t to the connector pin specified by m. m = 0: #2 Pin of the drawer kick connector m = 1: #5 Pin of the drawer kick connector On time is set to t x 100 msec; Off time is set to t x 100 msec.

ESC SP n

[Name]	Set the character right space.
[Format]	ASCII ESC SP n Hex. 1B 20 n Decimal 27 32 n
[Range]	0 ≤ n ≤ 255 Initial Value n = 0
[Description]	This command sets the size of space to right of character. Right space = n x [horizontal motion units].

ESC ! n

[Name]	Set print mode.																																																																													
[Format]	ASCII ESC ! n Hex. 1B 21 n Decimal 27 33 n																																																																													
[Range]	0 ≤ n ≤ 255 Initial Value n = 0																																																																													
[Description]	This command selects print mode(s) with bits having following meanings. This command affects the Chinese characters.(Only Double-height, Double-width, Underline) <table border="1" style="margin-left: 20px;"> <thead> <tr> <th>Bit</th> <th>On / Off</th> <th>Hex</th> <th>Decimal</th> <th>Function</th> </tr> </thead> <tbody> <tr> <td rowspan="2">0</td> <td>Off</td> <td>00</td> <td>0</td> <td>Character font A selected.</td> </tr> <tr> <td>On</td> <td>01</td> <td>1</td> <td>Character font B selected.</td> </tr> <tr> <td rowspan="2">1</td> <td>Off</td> <td>00</td> <td>0</td> <td>Not used. Fixed to Off.</td> </tr> <tr> <td>On</td> <td>00</td> <td>0</td> <td>Not used. Fixed to Off.</td> </tr> <tr> <td rowspan="2">2</td> <td>Off</td> <td>00</td> <td>0</td> <td>Not used. Fixed to Off.</td> </tr> <tr> <td>On</td> <td>00</td> <td>0</td> <td>Not used. Fixed to Off.</td> </tr> <tr> <td rowspan="2">3</td> <td>Off</td> <td>00</td> <td>0</td> <td>Emphasized mode not selected.</td> </tr> <tr> <td>On</td> <td>08</td> <td>8</td> <td>Emphasized mode selected.</td> </tr> <tr> <td rowspan="2">4</td> <td>Off</td> <td>00</td> <td>0</td> <td>Double-height mode not selected</td> </tr> <tr> <td>On</td> <td>10</td> <td>16</td> <td>Double-height mode selected</td> </tr> <tr> <td rowspan="2">5</td> <td>Off</td> <td>00</td> <td>0</td> <td>Double-width mode not selected.</td> </tr> <tr> <td>On</td> <td>20</td> <td>32</td> <td>Double-width mode selected.</td> </tr> <tr> <td rowspan="2">6</td> <td>Off</td> <td>00</td> <td>0</td> <td>Not used. Fixed to Off.</td> </tr> <tr> <td>On</td> <td>00</td> <td>0</td> <td>Not used. Fixed to Off.</td> </tr> <tr> <td rowspan="2">7</td> <td>Off</td> <td>00</td> <td>0</td> <td>Underline mode not selected.</td> </tr> <tr> <td>On</td> <td>80</td> <td>128</td> <td>Underline mode selected.</td> </tr> </tbody> </table>	Bit	On / Off	Hex	Decimal	Function	0	Off	00	0	Character font A selected.	On	01	1	Character font B selected.	1	Off	00	0	Not used. Fixed to Off.	On	00	0	Not used. Fixed to Off.	2	Off	00	0	Not used. Fixed to Off.	On	00	0	Not used. Fixed to Off.	3	Off	00	0	Emphasized mode not selected.	On	08	8	Emphasized mode selected.	4	Off	00	0	Double-height mode not selected	On	10	16	Double-height mode selected	5	Off	00	0	Double-width mode not selected.	On	20	32	Double-width mode selected.	6	Off	00	0	Not used. Fixed to Off.	On	00	0	Not used. Fixed to Off.	7	Off	00	0	Underline mode not selected.	On	80	128	Underline mode selected.
Bit	On / Off	Hex	Decimal	Function																																																																										
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7	Off	00	0	Underline mode not selected.																																																																										
	On	80	128	Underline mode selected.																																																																										

ESC \$ n

[Name]	Set absolute print position.
[Format]	ASCII ESC \$ nL nH Hex. 1B 24 nL nH Decimal 27 36 nL nH
[Range]	$0 \leq (nL + nH \times 256) \leq 65535$ ($0 \leq nH \leq 255$, $0 \leq nL \leq 255$)
[Description]	This command specifies the next print starting position in reference to the left edge of the print area. The printing start position is calculated using $(nL + nH \times 256) \times$ (vertical or horizontal motion units).

ESC - n

[Name]	Turn underline mode on/off.						
[Format]	ASCII ESC - n Hex. 1B 2D n Decimal 27 45 n						
[Range]	$0 \leq n \leq 1$ Initial Value n = 0						
[Description]	This command enables the print data following it to be printer out underlined. This command affects the Chinese characters. The underline mode varied depending on the following values of n: <table border="1" data-bbox="367 581 831 647"> <thead> <tr> <th>n</th> <th>Function</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>Turns off underline mode</td> </tr> <tr> <td>1</td> <td>Turns on underline mode, set at 1-dot thick</td> </tr> </tbody> </table>	n	Function	0	Turns off underline mode	1	Turns on underline mode, set at 1-dot thick
n	Function						
0	Turns off underline mode						
1	Turns on underline mode, set at 1-dot thick						

ESC 2

[Name]	Select default line spacing.
[Format]	ASCII ESC 2 Hex. 1B 32 Decimal 27 50
[Range]	N/A
[Description]	This command sets the default line spacing. The default line spacing is approximately 4.25 mm, which is equivalent to 34 dots.

ESC 3 n

[Name]	Set line spacing.
[Format]	ASCII ESC 3 n Hex. 1B 33 n Decimal 27 51 n
[Range]	$0 \leq n \leq 255$ Initial Value n = 34
[Description]	This command sets the line spacing using a following rule. Line spacing = n x (vertical or horizontal motion units)

ESC = n

[Name]	Select peripheral device.
[Format]	ASCII ESC = n Hex. 1B 3D n Decimal 27 61 n
[Range]	$0 \leq n \leq 255$ Initial Value n = 1

[Description]	Selects the peripheral device for which the data is effective from the host computer.			
	Bit	Function	"0"	"1"
	7	Undefined		
	6	Undefined		
	5	Undefined		
	4	Undefined		
	3	Undefined		
	2	Undefined		
	1	Undefined		
	0	Printer	Invalid	Valid

ESC @

[Name]	Initialize printer.
[Format]	ASCII ESC @ Hex. 1B 40 Decimal 27 64
[Range]	N/A
[Description]	Clears data from the print buffer and sets the printer to its default settings.

ESC E n

[Name]	Turn emphasized mode on / off.
[Format]	ASCII ESC E n Hex. 1B 45 n Decimal 27 69 n
[Range]	0 ≤ n ≤ 255 Initial Value n = 0
[Description]	This command turns emphasized mode on or off by toggling the least significant bit of n like following. When the LSB of n is 0, emphasized mode is turned off. When the LSB of n is 1, emphasized mode is turned on.

ESC J n

[Name]	Print and feed paper.
[Format]	ASCII ESC J n Hex. 1B 4A n Decimal 27 74 n
[Range]	0 ≤ n ≤ 255
[Description]	This command prints the data in the print buffer and feeds the paper [n X vertical motion unit].

ESC M n

[Name]	Select character font.						
[Format]	ASCII ESC M n Hex. 1B 4D n Decimal 27 77 n						
[Range]	n = 0, 1 Initial Value n = 0						
[Description]	This command selects only-byte character fonts using n as following.						
	<table border="1"> <tr> <td>n</td> <td>Function</td> </tr> <tr> <td>0</td> <td>Character font A selected</td> </tr> <tr> <td>1</td> <td>Character font B selected</td> </tr> </table>	n	Function	0	Character font A selected	1	Character font B selected
n	Function						
0	Character font A selected						
1	Character font B selected						

ESC R n

[Name]	Specify international character set.																																				
[Format]	ASCII ESC R n Hex. 1B 52 n Decimal 27 82 n																																				
[Range]	$0 \leq n \leq 16$ Initial Value n = 0																																				
[Description]	This command specifies international characters according to n values. <table border="1" style="margin-left: 40px;"> <tr><th>n</th><th>Character set</th></tr> <tr><td>0</td><td>USA</td></tr> <tr><td>1</td><td>France</td></tr> <tr><td>2</td><td>Germany</td></tr> <tr><td>3</td><td>UK</td></tr> <tr><td>4</td><td>Denmark I</td></tr> <tr><td>5</td><td>Sweden</td></tr> <tr><td>6</td><td>Italy</td></tr> <tr><td>7</td><td>Spain</td></tr> <tr><td>8</td><td>Japan</td></tr> <tr><td>9</td><td>Norway</td></tr> <tr><td>10</td><td>Denmark II</td></tr> <tr><td>11</td><td>Spain II</td></tr> <tr><td>12</td><td>Latin America</td></tr> <tr><td>13</td><td>Korea</td></tr> <tr><td>14</td><td>Russia</td></tr> <tr><td>15</td><td>Slavonic</td></tr> <tr><td>16</td><td>User Define</td></tr> </table>	n	Character set	0	USA	1	France	2	Germany	3	UK	4	Denmark I	5	Sweden	6	Italy	7	Spain	8	Japan	9	Norway	10	Denmark II	11	Spain II	12	Latin America	13	Korea	14	Russia	15	Slavonic	16	User Define
n	Character set																																				
0	USA																																				
1	France																																				
2	Germany																																				
3	UK																																				
4	Denmark I																																				
5	Sweden																																				
6	Italy																																				
7	Spain																																				
8	Japan																																				
9	Norway																																				
10	Denmark II																																				
11	Spain II																																				
12	Latin America																																				
13	Korea																																				
14	Russia																																				
15	Slavonic																																				
16	User Define																																				

ESC \ n

[Name]	Set relative print position.
[Format]	ASCII ESC \ n Hex. 1B 5C n Decimal 27 92 n
[Range]	$0 \leq (nL + nH \times 256) \leq 65535$ ($0 \leq nL \leq 255, 0 \leq nH \leq 255$)
[Description]	This command sets the print starting position based on the current position to $[(nL + nH \times 256) \times \text{horizontal or vertical motion unit}]$. The print starting position is moved to $(nL + nH \times 256)$ in the right direction based on the current position.

ESC a n

[Name]	Position alignment.								
[Format]	ASCII ESC a n Hex. 1B 61 n Decimal 27 97 n								
[Range]	$0 \leq n \leq 2$ Initial Value n = 0								
[Description]	This command specifies position alignment for all data in one line in standard mode, using n as follows: <table border="1" style="margin-left: 40px;"> <tr><th>n</th><th>Alignment</th></tr> <tr><td>0</td><td>Left alignment</td></tr> <tr><td>1</td><td>Center alignment</td></tr> <tr><td>2</td><td>Right alignment</td></tr> </table>	n	Alignment	0	Left alignment	1	Center alignment	2	Right alignment
n	Alignment								
0	Left alignment								
1	Center alignment								
2	Right alignment								

ESC c 3 n

[Name]	Select paper out sensor to enable at paper out signal output.																																				
[Format]	ASCII ESC c 3 n Hex. 1B 63 33 n Decimal 27 99 51 n																																				
[Range]	Specification: $0 \leq n \leq 3$ Initial Value n = 0																																				
[Description]	Selects paper out detector that outputs a paper out signal when paper has run out. <table border="1" data-bbox="416 378 948 569"> <thead> <tr> <th>Bit</th> <th>Function</th> <th>"0"</th> <th>"1"</th> </tr> </thead> <tbody> <tr> <td>7</td> <td>Undefined</td> <td></td> <td></td> </tr> <tr> <td>6</td> <td>Undefined</td> <td></td> <td></td> </tr> <tr> <td>5</td> <td>Undefined</td> <td></td> <td></td> </tr> <tr> <td>4</td> <td>Undefined</td> <td></td> <td></td> </tr> <tr> <td>3</td> <td>Undefined</td> <td></td> <td></td> </tr> <tr> <td>2</td> <td>Undefined</td> <td></td> <td></td> </tr> <tr> <td>1</td> <td>Paper roll near end detector</td> <td>Invalid</td> <td>Valid</td> </tr> <tr> <td>0</td> <td>Paper roll near end detector</td> <td>Invalid</td> <td>Valid</td> </tr> </tbody> </table>	Bit	Function	"0"	"1"	7	Undefined			6	Undefined			5	Undefined			4	Undefined			3	Undefined			2	Undefined			1	Paper roll near end detector	Invalid	Valid	0	Paper roll near end detector	Invalid	Valid
Bit	Function	"0"	"1"																																		
7	Undefined																																				
6	Undefined																																				
5	Undefined																																				
4	Undefined																																				
3	Undefined																																				
2	Undefined																																				
1	Paper roll near end detector	Invalid	Valid																																		
0	Paper roll near end detector	Invalid	Valid																																		

ESC d n

[Name]	Print and feed n lines
[Format]	ASCII ESC d n Hex. 1B 64 n Decimal 27 100 n
[Range]	$0 \leq n \leq 255$
[Description]	This command feeds the paper by n lines after printing the data in the print buffer.

ESC i


[Name]	Full cut.
[Format]	ASCII ESC i Hex. 1B 69 Decimal 27 105
[Range]	N/A
[Description]	This command executes a partial cut of the paper with one point left uncut.

ESC m

[Name]	Partial cut.
[Format]	ASCII ESC m Hex. 1B 6D Decimal 27 109
[Range]	N/A
[Description]	This command executes a partial cut of the paper with one point left uncut.

ESC p m t1 t2

[Name]	Specify pulse.
[Format]	ASCII ESC p m t1 t2 Hex. 1B 70 m t1 t2 Decimal 27 112 m t1 t2
[Range]	$0 \leq m \leq 1, 48 \leq m \leq 49$ $0 \leq t1 \leq 255$ $0 \leq t2 \leq 255$

[Description]	<p>This outputs a signal specified by t1 and t2 to the connector pin specified by m.</p> <p>Drawer kick on time is set to t1 x 2 ms; off time is set to t2 x 2 ms.</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <th>m</th> <th>Connector Pin</th> </tr> <tr> <td>0, 48</td> <td>Drawer kick connector pin #2</td> </tr> <tr> <td>1, 49</td> <td>Drawer kick connector pin #5</td> </tr> </table> 	m	Connector Pin	0, 48	Drawer kick connector pin #2	1, 49	Drawer kick connector pin #5
m	Connector Pin						
0, 48	Drawer kick connector pin #2						
1, 49	Drawer kick connector pin #5						

ESC t n

[Name]	Select character code table.																				
[Format]	<p>ASCII ESC t n</p> <p>Hex. 1B 74 n</p> <p>Decimal 27 116 n</p>																				
[Range]	<p>0 ≤ n ≤ 8</p> <p>Initial Value n = 0</p>																				
[Description]	<p>This command specifies code page according to the value of n as follows: This command affects the Chinese character mode.</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <th>n</th> <th>Character set</th> </tr> <tr> <td>0</td> <td>CP-437</td> </tr> <tr> <td>1</td> <td>Katakana</td> </tr> <tr> <td>2</td> <td>CP-850</td> </tr> <tr> <td>3</td> <td>CP-852</td> </tr> <tr> <td>4</td> <td>CP-860</td> </tr> <tr> <td>5</td> <td>CP-863</td> </tr> <tr> <td>6</td> <td>CP-865</td> </tr> <tr> <td>7</td> <td>CP-1252</td> </tr> <tr> <td>8</td> <td>User Define</td> </tr> </table>	n	Character set	0	CP-437	1	Katakana	2	CP-850	3	CP-852	4	CP-860	5	CP-863	6	CP-865	7	CP-1252	8	User Define
n	Character set																				
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4	CP-860																				
5	CP-863																				
6	CP-865																				
7	CP-1252																				
8	User Define																				

ESC { n

[Name]	Turns upside-down printing mode on/off.						
[Format]	<p>ASCII ESC { n</p> <p>Hex. 1B 7B n</p> <p>Decimal 27 123 n</p>						
[Range]	<p>0 ≤ n ≤ 255</p> <p>Initial Value n = 0</p>						
[Description]	<p>This command selects/deselects upside-down printing mode according to the least significant bit as follows.</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <th>n</th> <th>Upside-down mode</th> </tr> <tr> <td>0</td> <td>Turned off</td> </tr> <tr> <td>1</td> <td>Turned on</td> </tr> </table>	n	Upside-down mode	0	Turned off	1	Turned on
n	Upside-down mode						
0	Turned off						
1	Turned on						

FS p n m

[Name]	Print NV bit image.
[Format]	<p>ASCII FS p n m</p> <p>Hex. 1C 70 n m</p> <p>Decimal 28 112 n m</p>
[Range]	<p>1 ≤ n ≤ 255</p> <p>0 ≤ m ≤ 3, 48 ≤ m ≤ 51</p>

[Description]	This command prints NV bit image n using the mode specified by m as follows:	
	m	Mode
	0, 48	Normal
	1, 49	Double-width
	2, 50	Double-height
	3, 51	Quadruple

FS q n [xL xH yL d1...dk]1...[xL xH yL d1...dk]n

[Name]	Define NV bit image.																																														
[Format]	ASCII FS q n [xL xH yL d1...dk]1...[xL xH yL d1...dk]n Hex. 1C 71 n [xL xH yL d1...dk]1...[xL xH yL d1...dk]n Decimal 28 113 n [xL xH yL d1...dk]1...[xL xH yL d1...dk]n																																														
[Range]	$1 \leq n \leq 255$ $1 \leq (xL + xH \times 256) \leq 54$ ($0 \leq xL \leq 54, xH=0$) for 2 inch $1 \leq (xL + xH \times 256) \leq 72$ ($0 \leq xL \leq 72, xH=0$) for 3 inch $1 \leq (yL + yH \times 256) \leq 128$ ($0 \leq yL \leq 128, yH=0$) $0 \leq d \leq 255$ $k = (xL + xH \times 256) \times (yL + yH \times 256) \times 8$																																														
[Description]	<p>This command defines the NV bit image in the NV memory.</p> <p>n denotes the number of the NV being defined.</p> <p>(xL, xH) and (yL, yH) set the number of dots in the horizontal and vertical directions to $[(xL + xH \times 256) \times 8]$ and $[(yL + yH \times 256) \times 8]$ respectively for the NV bit image.</p> <p>[Ex.:]</p> <p>When $xL + xH \times 256 = 64$</p> <p>$(xL + xH \times 256) \times 8 \text{ dot} = 512 \text{ dot}$</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td>1</td><td>2</td><td>3</td><td>.....</td><td>63</td><td>64</td> </tr> <tr> <td>65</td><td>66</td><td>67</td><td></td><td>127</td><td>128</td> </tr> <tr> <td></td><td></td><td></td><td></td><td></td><td></td> </tr> <tr> <td></td><td></td><td></td><td></td><td></td><td></td> </tr> <tr> <td></td><td></td><td></td><td></td><td>k-1</td><td>k</td> </tr> </table> <p style="text-align: right;">$(yL + yH \times 256) \times 8 \text{ dot}$</p> <p style="text-align: center;">↓</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td>7</td><td>6</td><td>5</td><td>4</td><td>3</td><td>2</td><td>1</td><td>0</td> </tr> <tr> <td colspan="4" style="text-align: center;">MSB</td> <td colspan="4" style="text-align: center;">LSB</td> </tr> </table>	1	2	3	63	64	65	66	67		127	128																	k-1	k	7	6	5	4	3	2	1	0	MSB				LSB			
1	2	3	63	64																																										
65	66	67		127	128																																										
				k-1	k																																										
7	6	5	4	3	2	1	0																																								
MSB				LSB																																											

GS ! n

[Name]	Select character size.
[Format]	ASCII GS ! n Hex. 1D 21 n Decimal 29 33 n
[Range]	$0 \leq n \leq 255$ $(1 \leq \text{Vertical enlargement} \leq 8, 1 \leq \text{Horizontal enlargement} \leq 8)$ Initial Value: n = 0

[Description]	<p>This command selects the character height and width using bits 0 to 3, and bits 4 to 7 respectively as follows:</p> <table border="1"> <thead> <tr> <th>Bit</th> <th>Function</th> <th>Setting</th> </tr> </thead> <tbody> <tr> <td>0</td> <td rowspan="4">Specifies the number of times normal font size in the vertical direction</td> <td rowspan="4">Refer to Table 2 [Enlarged in vertical direction]</td> </tr> <tr> <td>1</td> </tr> <tr> <td>2</td> </tr> <tr> <td>3</td> </tr> <tr> <td>4</td> <td rowspan="4">Specifies the number of times normal font size in the horizontal direction</td> <td rowspan="4">Refer to Table 1 [Enlarged in horizontal direction]</td> </tr> <tr> <td>5</td> </tr> <tr> <td>6</td> </tr> <tr> <td>7</td> </tr> </tbody> </table> <p>This command affects the Chinese characters.</p> <p>Table 1 [Enlarged in horizontal direction]</p> <table border="1"> <thead> <tr> <th>Hex</th> <th>Decimal</th> <th>Enlargement</th> </tr> </thead> <tbody> <tr> <td>00</td> <td>0</td> <td>1 time(standard)</td> </tr> <tr> <td>10</td> <td>16</td> <td>2 times</td> </tr> <tr> <td>20</td> <td>32</td> <td>3 times</td> </tr> <tr> <td>30</td> <td>48</td> <td>4 times</td> </tr> <tr> <td>40</td> <td>64</td> <td>5 times</td> </tr> <tr> <td>50</td> <td>80</td> <td>6 times</td> </tr> <tr> <td>60</td> <td>96</td> <td>7 times</td> </tr> <tr> <td>7</td> <td>112</td> <td>8 times</td> </tr> </tbody> </table> <p>Table 2 [Enlarged in vertical direction]</p> <table border="1"> <thead> <tr> <th>Hex</th> <th>Decimal</th> <th>Enlargement</th> </tr> </thead> <tbody> <tr> <td>00</td> <td>0</td> <td>1 time(standard)</td> </tr> <tr> <td>01</td> <td>1</td> <td>2 times</td> </tr> <tr> <td>02</td> <td>2</td> <td>3 times</td> </tr> <tr> <td>03</td> <td>3</td> <td>4 times</td> </tr> <tr> <td>04</td> <td>4</td> <td>5 times</td> </tr> <tr> <td>05</td> <td>5</td> <td>6 times</td> </tr> <tr> <td>06</td> <td>6</td> <td>7 times</td> </tr> <tr> <td>07</td> <td>7</td> <td>8 times</td> </tr> </tbody> </table>	Bit	Function	Setting	0	Specifies the number of times normal font size in the vertical direction	Refer to Table 2 [Enlarged in vertical direction]	1	2	3	4	Specifies the number of times normal font size in the horizontal direction	Refer to Table 1 [Enlarged in horizontal direction]	5	6	7	Hex	Decimal	Enlargement	00	0	1 time(standard)	10	16	2 times	20	32	3 times	30	48	4 times	40	64	5 times	50	80	6 times	60	96	7 times	7	112	8 times	Hex	Decimal	Enlargement	00	0	1 time(standard)	01	1	2 times	02	2	3 times	03	3	4 times	04	4	5 times	05	5	6 times	06	6	7 times	07	7	8 times
Bit	Function	Setting																																																																				
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GS * x y [d1...d(x x y x 8)]

[Name]	Define downloaded bit image.
[Format]	<p>ASCII GS * x y [d1...d(x x y x 8)]</p> <p>Hex. 1D 2A x y [d1...d(x x y x 8)]</p> <p>Decimal 29 42 x y [d1...d(x x y x 8)]</p>
[Range]	<p>1 ≤ x ≤ 54 (for 2 inch)</p> <p>1 ≤ x ≤ 72 (for 3 inch)</p> <p>1 ≤ y ≤ 128</p> <p>0 ≤ d ≤ 255</p>

[Description]	<p>This command defines the downloaded bit image using the number of dots specified by x and y. x and y specify the number of dots in the horizontal and vertical directions respectively. D defines the bit image data. K denotes the number of the definition data.</p> <p>[Fx] When x = 64 $(x) \times \text{Udot} = 512 \text{ dot}$</p> <p style="text-align: right;">(y) x Udot</p> <p style="text-align: center;"> $[7][6][5][4][3][2][1][0]$ MSB LSB </p>
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GS (A pL pH n m

[Name]	Test print.														
[Format]	ASCII GS (A pL pH n m Hex. 1D 28 41 pL pH n m Decimal 29 40 65 pL pH n m														
[Range]	$(pL + (pH \times 256)) = 2$ ($pL = 2, pH = 0$) $0 \leq n \leq 2$ $2 \leq m \leq 3$														
[Description]	<p>Executes the specified test print.</p> <p>Specifies the parameter count following pL and pH in (pL + (pH x 256)) bytes.</p> <table border="1" style="margin-left: 40px;"> <tr> <td>n</td> <td>Paper Type</td> </tr> <tr> <td>0</td> <td>Basic sheet (paper roll)</td> </tr> <tr> <td>1</td> <td>Paper Roll</td> </tr> <tr> <td>2</td> <td></td> </tr> </table> <p>- n specifies the paper to use in the test print shown in the tables below.</p> <table border="1" style="margin-left: 40px;"> <tr> <td>m</td> <td>Type of Test Print</td> </tr> <tr> <td>2</td> <td>Printer Status (Self Print)</td> </tr> <tr> <td>3</td> <td>Rolling Pattern Print</td> </tr> </table>	n	Paper Type	0	Basic sheet (paper roll)	1	Paper Roll	2		m	Type of Test Print	2	Printer Status (Self Print)	3	Rolling Pattern Print
n	Paper Type														
0	Basic sheet (paper roll)														
1	Paper Roll														
2															
m	Type of Test Print														
2	Printer Status (Self Print)														
3	Rolling Pattern Print														

GS / m

[Name]	Print downloaded bit image.
[Format]	ASCII GS / m Hex. 1D 2F m Decimal 29 47 m
[Range]	$0 \leq m \leq 3, 48 \leq m \leq 51$

[Description]	This command prints the downloaded bit image defined by GS * according to the mode denoted by m.		
	m	Mode	Vertical dot density(DPI)
	0, 48	Normal	203
	1, 49	Double-width	203
	2, 50	Double-height	101
	3, 51	Quadruple	101

GS B n

[Name]	Turns white/black reverse printing mode on / off.
[Format]	ASCII GS B n Hex. 1D 42 n Decimal 29 66 n
[Range]	0 ≤ n ≤ 255 Initial Value n = 0
[Description]	This command selects white/black reverse printing mode by setting the least significant bit of n. When the LSB of n is 0, white/black reverse mode is turned off. When the LSB of n is 1, white/black reverse mode is turned on.

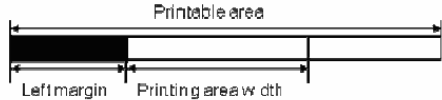
GS H n

[Name]	Select HRI character print position.										
[Format]	ASCII GS H n Hex. 1D 48 n Decimal 29 72 n										
[Range]	0 ≤ n ≤ 3, 48 ≤ n ≤ 51 Initial Value n = 0										
[Description]	Selects the printing position of HRI characters when printing bar codes.										
	<table border="1"> <thead> <tr> <th>m</th> <th>Printing Position</th> </tr> </thead> <tbody> <tr> <td>0, 48</td> <td>No print</td> </tr> <tr> <td>1, 49</td> <td>Above bar code</td> </tr> <tr> <td>2, 50</td> <td>Below bar code</td> </tr> <tr> <td>3, 51</td> <td>Above and below bar code(both)</td> </tr> </tbody> </table>	m	Printing Position	0, 48	No print	1, 49	Above bar code	2, 50	Below bar code	3, 51	Above and below bar code(both)
m	Printing Position										
0, 48	No print										
1, 49	Above bar code										
2, 50	Below bar code										
3, 51	Above and below bar code(both)										

GS I n

[Name]	Transmission of Printer ID.																											
[Format]	ASCII GS I n Hex. 1D 49 n Decimal 29 73 n																											
[Range]	1 ≤ n ≤ 3, 49 ≤ n ≤ 51, 65 ≤ n ≤ 69																											
[Description]	Selects the printing position of HRI characters when printing bar codes.																											
	<table border="1"> <thead> <tr> <th>n</th> <th>Printer ID Type</th> <th>Specifications</th> </tr> </thead> <tbody> <tr> <td>1, 49</td> <td>Model ID</td> <td>MB-1030</td> </tr> <tr> <td>2, 50</td> <td>Type ID</td> <td>1030-XX</td> </tr> <tr> <td>3, 51</td> <td>ROM Version ID</td> <td>Depends on the ROM version</td> </tr> <tr> <td>65</td> <td>Firmware Version</td> <td>Depends on the firmware version</td> </tr> <tr> <td>66</td> <td>Manufacturer Name</td> <td>MB-1030 System</td> </tr> <tr> <td>67</td> <td>Model Name</td> <td>MB-1030</td> </tr> <tr> <td>68</td> <td>Serial Number</td> <td>Depends on the serial number</td> </tr> <tr> <td>69</td> <td>Chinese Character Types</td> <td>Taiwan Language Characters: TW_BIG5 Japanese Language Characters: JP_SJIS</td> </tr> </tbody> </table>	n	Printer ID Type	Specifications	1, 49	Model ID	MB-1030	2, 50	Type ID	1030-XX	3, 51	ROM Version ID	Depends on the ROM version	65	Firmware Version	Depends on the firmware version	66	Manufacturer Name	MB-1030 System	67	Model Name	MB-1030	68	Serial Number	Depends on the serial number	69	Chinese Character Types	Taiwan Language Characters: TW_BIG5 Japanese Language Characters: JP_SJIS
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66	Manufacturer Name	MB-1030 System																										
67	Model Name	MB-1030																										
68	Serial Number	Depends on the serial number																										
69	Chinese Character Types	Taiwan Language Characters: TW_BIG5 Japanese Language Characters: JP_SJIS																										

GS L nL nH

[Name]	Set left margin.
[Format]	ASCII GS L nL nH Hex. 1D 4C nL nH Decimal 29 76 nL nH
[Range]	$0 \leq nL \leq 255$, $0 \leq nH \leq 255$ ($nL + nH \times 256 = 0$ ($nL=0$, $nH=0$))
[Description]	This command sets the left margin specified to $[(nL + nH \times 256) \times (\text{horizontal motion units})]$. 

GS P x y

[Name]	Set basic calculated pitch.
[Format]	ASCII GS P x y Hex. 1D 50 x y Decimal 29 80 x y
[Range]	$0 \leq x \leq 255$ $0 \leq y \leq 255$ Initial Value $x = 203$, $y = 203$: EPSON targeted model print head 203 DPI
[Description]	Sets the horizontal basic calculated pitch to approximately $25.4/x$ mm [$(1/x)$ inch], and the vertical basic calculated pitch to approximately $25.4/y$ mm [$(1/y)$ inch]. $x = 0$: Returns the horizontal basic calculated pitch to its default value. $y = 0$: Returns the vertical basic calculated pitch to its default value.

GS V m

[Name]	Cut paper.										
[Format]	ASCII GS V m (n) Hex. 1D 56 m (n) Decimal 29 86 m (n)										
[Range]	$m = 0, 1, 65, 66$										
[Description]	Executes specified paper cut. <table border="1" data-bbox="412 980 1016 1145"> <thead> <tr> <th>m</th> <th>Function</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>Full cut</td> </tr> <tr> <td>1</td> <td>Partial cut (one point uncut)</td> </tr> <tr> <td>65</td> <td>Feeds paper to (cutting position + [n x basic calculated pitch]) and performs a full cut</td> </tr> <tr> <td>66</td> <td>Feeds paper to (cutting position + [n x basic calculated pitch]) and performs a partial cut (one point uncut)</td> </tr> </tbody> </table>	m	Function	0	Full cut	1	Partial cut (one point uncut)	65	Feeds paper to (cutting position + [n x basic calculated pitch]) and performs a full cut	66	Feeds paper to (cutting position + [n x basic calculated pitch]) and performs a partial cut (one point uncut)
m	Function										
0	Full cut										
1	Partial cut (one point uncut)										
65	Feeds paper to (cutting position + [n x basic calculated pitch]) and performs a full cut										
66	Feeds paper to (cutting position + [n x basic calculated pitch]) and performs a partial cut (one point uncut)										

GS a n

[Name]	Enable/disable transmission of automatic status.
[Format]	ASCII GS a n Hex. 1D 61 n Decimal 29 97 n
[Range]	$0 \leq n \leq 255$

[Description]	Selects the statuses that are targeted for transmission with the automatic status function (ASB: Automatic Status Back).				
	Bit	Statuses Targeted for ASB	"0"	"1"	
	7	Black Mark Detector	Invalid	Valid	
	6	Undefined			
	5	Undefined			
	4	Undefined			
	3	Continuous Paper Detector	Invalid	Valid	
	2	Error	Invalid	Valid	
	1	ONLINE/OFFLINE Status	Invalid	Valid	
	0	Drawer kick connector pin #3	Invalid	Valid	
	The printer information transmitted is comprised of 4 bytes as follows:				
	First byte(printer information)				
	Bit	Off/On	Hex	Decimal	Function
	7	Off	00	0	Not used. Fixed to Off
	6	Off	00	0	Paper is not being fed by the paper feed button
		On	40	64	Paper is being fed by the paper feed button
	5	Off	00	0	Cover is close
		On	20	32	Cover is open
	4	On	10	16	Not used. Fixed to On
	3	Off	00	0	On-line
		On	08	8	Off-line
	2	Off	00	0	Drawer kick-out connector pin 3 is LOW
		On	04	4	Drawer kick-out connector pin 3 is HIGH
	1	Off	00	0	Not used. Fixed to Off
	0	Off	00	0	Not used. Fixed to Off
Second byte(printer information)					
Bit	Off/On	Hex	Decimal	Function	
7	Off	00	0	Not used. Fixed to Off	
6	Off	00	0	Not used. Fixed to Off	
5	Off	00	0	Not used. Fixed to Off	
4	Off	00	0	Not used. Fixed to Off	
3	On	08	8	Not used. Fixed to Off	
2	On	04	4	Not used. Fixed to Off	
1	On	02	2	Not used. Fixed to Off	
0	On	01	1	Not used. Fixed to Off	
Third byte (paper sensor information)					
Bit	Off/On	Hex	Decimal	Function	
7	Off	00	0	Not used. Fixed to Off	
6	Off	00	0	Not used. Fixed to Off	
5	Off	00	0	Not used. Fixed to Off	
4	On	00	0	Not used. Fixed to Off	
2,3	Off	00	0	Paper end sensor: paper present	
	On	0C	12	Paper end sensor: no paper present	
0,1	Off	00	0	Paper near end sensor: paper adequate	
	On	03	3	Paper near end sensor: paper near end	
Fourth byte (paper sensor information)					
Bit	Off/On	Hex	Decimal	Function	
7	Off	00	0	Not used. Fixed to Off	
6	Off	00	0	Black mark sensor status	
5	Off	00	0	Not used. Fixed to Off	
4	Off	00	0	Not used. Fixed to Off	
3	On	08	8	Not used. Fixed to On	
2	On	04	4	Not used. Fixed to On	
1	On	02	2	Not used. Fixed to On	
0	On	01	1	Not used. Fixed to On	

GS f n

[Name]	Select HRI character font.						
[Format]	ASCII GS f n Hex. 1D 66 n Decimal 29 102 n						
[Range]	n = 0,1,48,49 Initial Value n = 0						
[Description]	Selects the printing position of HRI character font when printing bar codes. <table border="1" data-bbox="416 368 731 430"> <tr> <th>n</th> <th>Font</th> </tr> <tr> <td>0, 48</td> <td>Selects Font A (12 x 24).</td> </tr> <tr> <td>1, 49</td> <td>Selects Font B (9 x 17).</td> </tr> </table>	n	Font	0, 48	Selects Font A (12 x 24).	1, 49	Selects Font B (9 x 17).
n	Font						
0, 48	Selects Font A (12 x 24).						
1, 49	Selects Font B (9 x 17).						

GS h n

[Name]	Set bar code height.
[Format]	ASCII GS h n Hex. 1D 68 n Decimal 29 104 n
[Range]	1 ≤ n ≤ 255 Initial Value n = 162
[Description]	Sets bar code height to n dots.

GS k m d1 ... dk NUL.2.gs k m n d1 ... dk

[Name]	Print bar code.
[Format]	1. ASCII GS k m d1...dk NUL Hex. 1D 6B m d1...dk NUL Decimal 29 107 m d1...dk NUL 2. ASCII GS k m n d1...dk NUL Hex. 1D 6B m n d1...dk NUL Decimal 29 107 m n d1...dk NUL
[Range]	1. 0 ≤ m ≤ 6 The definition region of k and d differ according to the bar code type. 2. 65 ≤ m ≤ 73 The definition region of n and d differ according to the bar code type.

[Description]	Selects bar code type and prints bar codes.		
	1:		
	m	Bar Code Type	Defined region of k
	0	UPC-A	$48 \leq d \leq 57$
	1	UPC-E	$11 \leq k \leq 12$ $48 \leq d \leq 57$
	2	JAN13 (EAN13)	$12 \leq k \leq 13$ $48 \leq d \leq 57$
	3	JAN8 (EAN8)	$7 \leq k \leq 8$ $48 \leq d \leq 57$
	4	CODE39	$1 \leq k \leq 255$ $48 \leq d \leq 57, 65 \leq d \leq 90$ 32, 36, 37, 43, 45, 46, 47
	5	ITF	$2 \leq k \leq 254$ (However, this is an even number.) $48 \leq d \leq 57$
	6	CODABAR	$1 \leq k \leq 255$ $48 \leq d \leq 57, 65 \leq d \leq 68$ 36, 43, 45, 46, 47, 58
	2:		
	m	Bar Code Type	Defined region of n
	65	UPC-A	$11 \leq n \leq 12$ $48 \leq d \leq 57$
	66	UPC-E	$11 \leq n \leq 12$ $48 \leq d \leq 57$
	67	JAN13 (EAN13)	$12 \leq n \leq 13$ $48 \leq d \leq 57$
	68	JAN8 (EAN8)	$7 \leq n \leq 8$ $48 \leq d \leq 57$
	69	CODE39	$1 \leq n \leq 255$ $48 \leq d \leq 57, 65 \leq d \leq 90$ 32, 36, 37, 43, 45, 46, 47
	70	ITF	$2 \leq n \leq 254$ (However, this is an even number.) $48 \leq d \leq 57$
	71	CODABAR	$1 \leq n \leq 255$ $48 \leq d \leq 57, 65 \leq d \leq 68$ 36, 43, 45, 46, 47, 58
	72	CODE93	$1 \leq n \leq 255$ $0 \leq d \leq 127$
	73	CODE128	$2 \leq n \leq 255$ $0 \leq d \leq 127$

GS r n

[Name]	Transmission of status.
[Format]	ASCII GS r n Hex. 1D 72 n Decimal 29 114 n
[Range]	n = 1, 2

[Description]	Sends the specified status.		
	Detector Status (N=1)		
	Bit	Status	"0"
	7	Fixed at 0	"1"
	6	Undefined	
	5	Undefined	
	4	Fixed at 0	
	3	Paper roll end detector	Has Paper
	2	Paper roll end detector	Paper out
	1	Paper roll near end detector	Has Paper
	0	Paper roll near end detector	Paper out
	Drawer Kick Connector Status (N=2)		
	Bit	Status	"0"
	7	Fixed at 0	"1"
	6	Undefined	
	5	Undefined	
	4	Fixed at 0	
	3	Undefined	
	2	Undefined	
	1	Undefined	
	0	Drawer kick connector pin #3	"L"
			"H"

GS v 0 m xL Hy yH d1 ... dk

[Name]	Print raster bit images.																																																
[Format]	ASCII GS v 0 m xL xH yL yH d1...dk Hex. 1D 76 30 m xL xH yL yH d1...dk Decimal 29 118 48 m xL xH yL yH d1...dk																																																
[Range]	$m = 0, m = 48$ $0 \leq xL \leq 54(\text{for } 2 \text{ inch})$ $0 \leq xL \leq 72(\text{for } 3 \text{ inch})$ $0 \leq xH \leq 0$ $0 \leq yL \leq 255$ $0 \leq yH \leq 3$ $0 \leq d \leq 255$ $k = (xL+xH \times 256) \times (yL+yH \times 256)$ However, $k \neq 0$																																																
[Description]	Prints raster method bit images using mode m.																																																
	m	Mode	Density of Vert. Dir. Dots																																														
	0, 48	Normal Mode	203 DPI																																														
			Density of Hor. Dir. Dots																																														
			203 DPI																																														
	<p>[Ex.:]</p> <p>When $xL + xH \times 256 = 64$</p> <p>$(xL+xH \times 256) \times 8 \text{dot} = 512 \text{dot}$</p> <table border="1"> <tr> <td>1</td> <td>2</td> <td>3</td> <td>.....</td> <td>63</td> <td>64</td> </tr> <tr> <td>65</td> <td>66</td> <td>67</td> <td></td> <td>127</td> <td>128</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td>k-1</td> <td>k</td> </tr> </table> <p>(yL + yH x 256) dot</p> <p>↓</p> <table border="1"> <tr> <td>7</td> <td>6</td> <td>5</td> <td>4</td> <td>3</td> <td>2</td> <td>1</td> <td>0</td> </tr> <tr> <td colspan="4">MSB</td> <td colspan="4">LSB</td> </tr> </table>			1	2	3	63	64	65	66	67		127	128																	k-1	k	7	6	5	4	3	2	1	0	MSB				LSB			
1	2	3	63	64																																												
65	66	67		127	128																																												
				k-1	k																																												
7	6	5	4	3	2	1	0																																										
MSB				LSB																																													

GS w n

[Name]	Set bar code horizontal size.		
[Format]	ASCII GS w n Hex. 1D 77 n Decimal 29 119 n		
[Range]	1 ≤ n ≤ 6 Initial Value n = 2		
[Description]	Sets the bar code horizontal size.		
	n	Multi-level Bar Code Module Width [mm]	Binary Level Bar Code Fine Element Width[mm] Thick Element Width[mm]
	1	0.141	0.141 0.423
	2	0.282	0.282 0.706
	3	0.423	0.423 1.129
	4	0.564	0.564 1.411
	5	0.706	0.706 1.834
	6	0.847	0.847 2.258

4. KANJI CONTROL COMMAND DETAILS

FS ! n

[Name]	Batch specify Chinese character print mode.		
[Format]	ASCII GS ! n Hex. 1C 21 n Decimal 28 33 n		
[Range]	0 ≤ n ≤ 255 Initial Value n = 0		
[Description]	Batch specifies the Chinese character print mode. This command affects all characters.		
	Bit	Function	"0" "1"
	7	Underline	Off On
	6	Undefined	
	5	Undefined	
	4	Undefined	
	3	Double tall expanded	Off On
	2	Expanded wide	Off On
	1	Undefined	
	0	Undefined	

FS &

[Name]	Specify Chinese character mode.		
[Format]	ASCII GS & Hex. 1C 26 Decimal 28 38		
[Range]	N/A		
[Description]	Specifies Chinese characters mode. This command affects the character code table.		

FS .

[Name]	Cancel Chinese character mode.		
[Format]	ASCII GS . Hex. 1C 2E Decimal 28 46		
[Range]	N/A		
[Description]	Cancels Chinese characters mode. This command affects the character code table, it is set to the initial value (CP-437).		

3-3-1-1. Character Code Table

ESC/POS Standard Codes

Katakana

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
	0123456789ABCDEF															
0																
1																
2	!"#\$%&'()*+,-./															
3	0123456789:;<=>?															
4	@ABCDEFGHIJKLMNO															
5	PQRSTUVWXYZ[\]^_															
6	`abcdefghijklmnopq															
7	rstuvwxyz{ }~															
8	[Barcodes]															
9	[Katakana]															
A	。、「」、・ヲアイウエオヤヨツ															
B	ーアイウエオカキククコサシスセソ															
C	タチツテトナニヌネノハヒフヘホマ															
D	ミムメモヤヨラリルレロワヅン															
E	ニ田▲▼◆♣●〇△															
F	X年日月時分秒〒市区町村人															

Notes: The character code tables show only character configurations. They do not show actual print pattern.

CP437

```

0 0123456789ABCDEF
1
2 !"#$%&'()*+,-./
3 0123456789:;<=>?
4 @ABCDEFGHIJKLMNO
5 PQRSTUVWXYZ[\]^_
6 `abcdefghijklmno
7 pqrstuvwxyz{|}~
8 ÇüéääåäçêëèïîËÄ
9 ÉæœöøóüÿÖÜ£¥¢ƒ
A áíóúñÑáòíí½¾¿«»
B
C
D
E αβγπσμτφθΩδωφεη
F ≡±>><<|j÷≈°·√n²■
    
```

CP737

```

0 0123456789ABCDEF
1
2 !"#$%&'()*+,-./
3 0123456789:;<=>?
4 @ABCDEFGHIJKLMNO
5 PQRSTUVWXYZ[\]^_
6 `abcdefghijklmno
7 pqrstuvwxyz{|}~
8 ΑΒΓΔΕΖΗΘΙΚΛΜΝΞΟΠ
9 ΡΣΤΥΦΧΨΩαβγδεζηθ
A ικλμνξοπρστυφχψ
B
C
D
E ωάέήϊίϊούύώΆΈΉΊΌΥ
F Ω±>><<|Y÷≈°·√n²■
    
```

CP850

```

0123456789ABCDEF
0
1
2 !"#$%&'()*+,-./
3 0123456789:;<=>?
4 @ABCDEFGHIJKLMNO
5 PQRSTUVWXYZ[\]^_
6 `abcdefghijklmno
7 pqrstuvwxyz{|}~
8 ÇüéääåçêëîïïÄÅ
9 ÊæŒôöüÿÿÖÜøŁØ×f
A áíóúñÑãø¿@~VVi«»
B
C
D
E
F

```

CP852

```

0123456789ABCDEF
0
1
2 !"#$%&'()*+,-./
3 0123456789:;<=>?
4 @ABCDEFGHIJKLMNO
5 PQRSTUVWXYZ[\]^_
6 `abcdefghijklmno
7 pqrstuvwxyz{|}~
8 Çüéääüçç}ëöôiZĂĈ
9 ÉŁÍóöLİŠsÖÜTtŁ×č
A áíóúAąŻżEę ŹĆŝ«»
B
C
D
E
F

```

CP857

0123456789ABCDEF
0
1
2 !"#\$%&'()*+,-./
3 0123456789:;<=>?
4 @ABCDEFGHIJKLMNO
5 PQRSTUVWXYZ[\]^_
6 `abcdefghijklmnop
7 pqrstuvwxyz{|}~
8 ÇüéáãääçêëëïíîÏÄÅ
9 ÈæÆóöøùúÏÖÜø£Ø\$§
A áíóúñÑĠġĴ@-½¼ı«»
B
C
D
E
F

CP860

0123456789ABCDEF
0
1
2 !"#\$%&'()*+,-./
3 0123456789:;<=>?
4 @ABCDEFGHIJKLMNO
5 PQRSTUVWXYZ[\]^_
6 `abcdefghijklmnop
7 pqrstuvwxyz{|}~
8 ÇüéáãääÀçÊËÏÖİÄÅ
9 ÈÀÈòóòÙùÏÖÜø£ØΠÓ
A áíóúñÑαΩζò-½¼ı«»
B
C
D
E
F

CP862

```

0123456789ABCDEF
0
1
2 !"#$%&'()*+,-./
3 0123456789:;<=>?
4 @ABCDEFGHIJKLMNO
5 PQRSTUVWXYZ[\]^_
6 `abcdefghijklmno
7 pqrstuvwxyz{|}~
8 אבגדהוזחטיךכלםן
9 ןדעףגףצקרשןףזףטף
A αιόúñÑāōž-~¼½¾i«»
B █ | | | | | | | | | |
C █ | | | | | | | | | |
D █ | | | | | | | | | |
E αβΓ πΣσµτφθΩδωφΕΠ
F ≡+>≤|j÷≈°·√n²█
    
```

CP863

```

0123456789ABCDEF
0
1
2 !"#$%&'()*+,-./
3 0123456789:;<=>?
4 @ABCDEFGHIJKLMNO
5 PQRSTUVWXYZ[\]^_
6 `abcdefghijklmno
7 pqrstuvwxyz{|}~
8 ÇüéáÀáñçêëèïî=À&
9 ÊËËôÊËËüüòòÛç£ÛÛf
A | óú " ³ î - ¼ ½ ¾ «»
B █ | | | | | | | | | |
C █ | | | | | | | | | |
D █ | | | | | | | | | |
E αβΓ πΣσµτφθΩδωφΕΠ
F ≡+>≤|j÷≈°·√n²█
    
```

CP865

```

0123456789ABCDEF
0
1
2 !"#$%&'()*+,-./
3 0123456789:;<=>?
4 @ABCDEFGHIJKLMNO
5 PQRSTUVWXYZ[\]^_
6 `abcdefghijklmno
7 pqrstuvwxyz{|}~
8 ÇüéääåçêëëïïËÄ
9 ÈæŒôöüÿÛÜøŁłƒ
A áíóúñÑ@Ωζτ~½¼i«»
B ████████|+|=|||+|||+|||+|||+
C ████████|+|=|||+|||+|||+|||+
D ████████|+|=|||+|||+|||+|||+
E αβΓπΣμτΦθΩδφ€Π
F ≡±≥≤|j÷≈°•√n²■
    
```

CP866

```

0123456789ABCDEF
0
1
2 !"#$%&'()*+,-./
3 0123456789:;<=>?
4 @ABCDEFGHIJKLMNO
5 PQRSTUVWXYZ[\]^_
6 `abcdefghijklmno
7 pqrstuvwxyz{|}~
8 АБВГДЕЖЗИЙКЛМНОП
9 РСТУФХЦЧШЩЪЫЬЭЮЯ
A абвгдежзийклмноп
B ████████|+|=|||+|||+|||+|||+
C ████████|+|=|||+|||+|||+|||+
D ████████|+|=|||+|||+|||+|||+
E рстуфхцчшщъыьэюя
F ЁёЄєİïÛÿ°•√№я■
    
```

CP1250

```
0 123456789ABCDEF
1
2 !"#$%&'()*+,-./
3 0123456789:;<=>?
4 @ABCDEFGHIJKLMNO
5 PQRSTUVWXYZ[\]^_
6 `abcdefghijklmno
7 pqrstuvwxyz{|}~
8 € ‚“”„…†‡ §Š‹ŒŽž
9 ‚“”„…†‡ §Š‹ŒŽž
A ˘˘łŕA!§““§«¬–®ž
B °±ııµıı·aş»Lııž
C řáääááłččččēēēēīīđ
D ĐŃŃŌŌŌŌŌ×ŔŪŪŪŪŪŸŢŦ
E řáääááııččččēēēēīīđ
F đňňŏŏŏŏŏ÷řŭŭŭŭŭŧ
```

CP1251

```
0 123456789ABCDEF
1
2 !"#$%&'()*+,-./
3 0123456789:;<=>?
4 @ABCDEFGHIJKLMNO
5 PQRSTUVWXYZ[\]^_
6 `abcdefghijklmno
7 pqrstuvwxyz{|}~
8 ЪГ г „…†‡ €%Љ ъкћџ
9 ЪГ г „…†‡ €%Љ ъкћџ
A ŷŷЈаг!§Е@€«¬–®İ
B °±İıгµıı·ё№е»јSsı
C АБВГДЕЖЗИЙКЛМНОП
D РСТУФХЦЧШЩЪЫЬЭЮЯ
E абвгдежзийклмноп
F рстуфхцчшщъыьэюя
```


CP1252

```

0123456789ABCDEF
0
1
2 !"#$%&'()*+,-./
3 0123456789:;<=>?
4 @ABCDEFGHIJKLMNO
5 PQRSTUVWXYZ[\]^_
6 `abcdefghijklmno
7 pqrstuvwxyz{|}~
8 € , ; " # $ % & ' ( ) * + , - . /
9 . : ; " # $ % & ' ( ) * + , - . /
A i q f a ¥ | § ¨ © ª « ¬ ® ¯
B ° ± ² ³ ´ µ ¶ · ¸ ¹ º » ¼ ½ ¾ ¿
C Ā ā Ă ă Ą Ą Ć ć Ę ę Ī ī Ĭ ĭ
D Đ ñ Ò ó Ô õ Ö × Ø Ù Ú Û Ü Ý Þ ß
E ā ā ā ā ā ā ç é ê ë ĩ ĩ ĩ ĩ
F đ ñ ò ó ô õ ö ÷ ø ù ú û ü ý þ ÿ
    
```

CP1253

```

0123456789ABCDEF
0
1
2 !"#$%&'()*+,-./
3 0123456789:;<=>?
4 @ABCDEFGHIJKLMNO
5 PQRSTUVWXYZ[\]^_
6 `abcdefghijklmno
7 pqrstuvwxyz{|}~
8 € , ; " # $ % & ' ( ) * + , - . /
9 . : ; " # $ % & ' ( ) * + , - . /
A " " Å £ ¤ ¥ ¦ § ¨ © ª « ¬ ® ¯
B ° ± ² ³ ´ µ ¶ · ¸ ¹ º » ¼ ½ ¾ ¿
C TABΓΔΕΖΗΘΙΚΛΜΝΞΟ
D ΠΡ ΣΤΥΦΧΨΩΪΫάέήί
E Ūāβγδεζηθικλμνξο
F πρστυφχψωϊϋόύώ
    
```

CP1254

```

0123456789ABCDEF
0
1
2  !"#$%&'()*+,-./
3 0123456789:;<=>?
4 @ABCDEFGHIJKLMNO
5 PQRSTUVWXYZ[\]^_
6 `abcdefghijklmno
7 pqrstuvwxyz{|}~
8 € ‚ ƒ „ … • † ‡ § ‹ › ¤ ¥
9 „ ˆ ˜ ¨ ˚ ˛ ˜ ˘ ˙ ˚ ˛ ˜ ˘ ˙ ˚
A ı ç ł ¢ ¥ ¦ § ¨ © ª « ¬ ® ¯
B ° ± ² ³ ´ µ ¶ · ¸ ¹ º » ¼ ½ ¾ ¿
C Ā ā Ă ă Ą Ą Ą Ą Ą Ą Ą Ą Ą Ą Ą Ą Ą
D Ğ ğ Ō ō Ő ő Œ œ Ū ū Ů ů Ű ű Š š
E ą ą ą ą ą ą ą ą ą ą ą ą ą ą ą ą
F ǧ ń ń ń ń ń ń ń ń ń ń ń ń ń ń ń ń

```

CP1257

```

0123456789ABCDEF
0
1
2  !"#$%&'()*+,-./
3 0123456789:;<=>?
4 @ABCDEFGHIJKLMNO
5 PQRSTUVWXYZ[\]^_
6 `abcdefghijklmno
7 pqrstuvwxyz{|}~
8 € ‚ ƒ „ … • † ‡ § ‹ › ¤ ¥
9 „ ˆ ˜ ¨ ˚ ˛ ˜ ˘ ˙ ˚ ˛ ˜ ˘ ˙ ˚
A ı ç ł ¢ ¥ ¦ § ¨ © ª « ¬ ® ¯
B ° ± ² ³ ´ µ ¶ · ¸ ¹ º » ¼ ½ ¾ ¿
C Ā ā Ă ă Ą Ą Ą Ą Ą Ą Ą Ą Ą Ą Ą Ą
D Ś Ń ņ ŏ Ő ő Œ œ Ū ū Ů ů Ű ű Š š
E ą ą ą ą ą ą ą ą ą ą ą ą ą ą ą ą
F ś ń ń ń ń ń ń ń ń ń ń ń ń ń ń ń ń

```

International Characters

	23	24	40	5B	5C	5D	5E	60	7B	7C	7D	7E
U.S.A	#	\$	@	[\]	^	`	{		}	~
France	#	\$	à	°	ç	ø	^	`	é	ü	ë	~
Germany	#	\$	ä	Ä	ö	Ü	^	`	ä	ö	ü	~
UK	#	\$	£	[\]	^	`	{		}	~
Denmark I	#	\$	@	Æ	Ø	Å	^	`	æ	ø	å	~
Sweden	#	\$	É	Ä	Ö	Å	^	ë	ä	ö	å	ü
Italy	#	\$	È	°	\	é	^	ù	ä	ö	è	ì
Spain	#	\$	@	í	ñ	¿	^	`	ñ	õ	¿	~
Japan	#	\$	@	[¥]	^	`	{		}	~
Norway	#	\$	È	Æ	Ø	Å	^	é	æ	ø	å	ü
Denmark II	#	\$	È	Æ	Ø	Å	^	é	æ	ø	å	ü
Spain II	#	\$	à	á	í	¿	^	`	í	ñ	ó	ú
Latin America	#	\$	á	í	ñ	¿	^	ü	í	ñ	ó	ú
Korea	#	\$	á	@	W	\	^	`	{		}	~
Russia	#	\$	@	[\]	^	`	{		}	~
Slavonic	#	\$	@	[\]	^	`	{		}	~

3-3-1-2. Japanese Language Codes (Shift-JIS Codes)

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
8140	一	、	、	、	、	、	、	、	、	、	、	、	、	、	、	、
8150	、	、	、	、	、	、	、	、	、	、	、	、	、	、	、	、
8160	、	、	、	、	、	、	、	、	、	、	、	、	、	、	、	、
8170	、	、	、	、	、	、	、	、	、	、	、	、	、	、	、	、
8180	、	、	、	、	、	、	、	、	、	、	、	、	、	、	、	、
8190	、	、	、	、	、	、	、	、	、	、	、	、	、	、	、	、
81A0	、	、	、	、	、	、	、	、	、	、	、	、	、	、	、	、
81B0	、	、	、	、	、	、	、	、	、	、	、	、	、	、	、	、
81C0	、	、	、	、	、	、	、	、	、	、	、	、	、	、	、	、
81D0	、	、	、	、	、	、	、	、	、	、	、	、	、	、	、	、
81E0	、	、	、	、	、	、	、	、	、	、	、	、	、	、	、	、
81F0	、	、	、	、	、	、	、	、	、	、	、	、	、	、	、	、

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
8240																
8250	1	2	3	4	5	6	7	8	9							
8260	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
8270	Q	R	S	T	U	V	W	X	Y	Z						
8280	a	b	c	d	e	f	g	h	i	j	k	l	m	n	o	
8290	p	q	r	s	t	u	v	w	x	y	z					
82A0	あ	い	う	え	お	か	き	く	け	こ	さ	し	じ	す	ず	せ
82B0	そ	ぞ	た	だ	ち	づ	つ	て	と	ど	な	に	ぬ	ね	の	は
82C0	ば	び	び	ふ	ぶ	ふ	へ	べ	べ	ほ	ぼ	ま	み	む	め	
82D0	も	や	ゆ	ゆ	よ	ら	り	る	れ	ろ	わ	わ	ゐ	ゑ		
82E0	を															
82F0																

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
8340	ア	アイ	ウ	エ	エ	オ	カ	ガ	キ	ク	ク					
8350	ケ	ゲ	コ	サ	ザ	シ	ジ	ス	セ	ソ	タ					
8360	チ	ツ	ツ	テ	ト	ナ	ニ	ノ	ハ	バ						
8370	パ	ビ	ビ	フ	ブ	ヘ	ベ	ホ	ボ	マ	ミ					
8380	ム	メ	ヤ	ユ	ユ	ヨ	ラ	リ	ル	ロ	ワ					
8390	ヰ	ヱ	ヰ	ヱ	ヰ	ヱ	ヰ	ヱ	ヰ	ヱ	ヰ	A				
83A0	Β	Γ	Δ	Ε	Ζ	Η	Θ	Ι	Κ	Λ	Μ	Ν	Ξ	Ο	Π	Ρ
83B0	Σ	Τ	Υ	Φ	Χ	Ψ	Ω									α
83C0	β	γ	δ	ε	ζ	η	θ	ι	κ	λ	μ	ν	ξ	ο	π	ρ
83D0	σ	τ	υ	φ	χ	ψ	ω									
83E0																
83F0																

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
8440	А	Б	В	Г	Д	Е	Е	Ж	З	И	Й	К	Л	М	Н	О
8450	П	Р	С	Т	У	Ф	Х	Ц	Ч	Ш	Щ	Ъ	Ы	Ь	Э	Ю
8460	Я															
8470	а	б	в	г	д	е	е	ж	з	и	й	к	л	м	н	
8480	о	п	р	с	т	у	ф	х	ц	ч	ш	щ	ъ	ы	ь	э
8490	ю	я														
84A0																
84B0																
84C0																
84D0																
84E0																
84F0																

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
8540																
8550																
8560																
8570																
8580																
8590																
85A0																
85B0																
85C0																
85D0																
85E0																
85F0																

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
8640																
8650																
8660																
8670																
8680																
8690																
86A0																
86B0																
86C0																
86D0																
86E0																
86F0																

0123456789ABCDEF

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0123456789ABCDEF

8940 院陰隱頤吋右宇扁羽迂雨卯藕藕丑確
8950 白渦噓唄嶺蔚機娣庶廬瓜閩嚙云運雲
8960 荏餌戲宮嬰影映曳榮永泳洩瑛盈穎穎
8970 英術詠銳液滾益賦悅謁越閏樓厥円
8980 圍壘奪宴怨延掩播沿濱炎烽煙蕪穰緣
8990 華苑蘭遺鉛鸞瑤於汚塢凹央輿往庀押
89A0 旺橫歐毆王翁嶺鶯鶯黃岡沖荻億屋億
89B0 臙桶杜乙掩卸恩溫福晉下化假何伽伽
89C0 住加可嘉夏嫁家寡科暇果架歌河火珂
89D0 襖禾稼齒花荷茄荷華萼擲嗶嗶貨邇邇
89E0 鏡蚊俄俄我牙齒臥芽蟻賀雅鐵鯨介會
89F0 解回塊壞殖快怪悔恢懷戒扮改

0123456789ABCDEF

8B40 機屏殺氣汽畿折季稀紀徽規記費起軌
8B50 輝飢騎鬼隼偽儀妓直戲技擬欺轄疑祗
8B60 義蠟譜譏掬菊菊吉吃喫桔楮詰砧杵黍
8B70 却客脚虐逆丘久仇休及吸宮弓急救
8B80 朽求汲泣灸球究窮發級糾給旧牛去居
8B90 巨拒舉舉渠虛許距經淵藥魚亨享京供
8BA0 俠僑兇驍共凶凶匪卽叫喬境峽強強怯
8BB0 恐恭扶救橋況狂狹獨陶齊興壽擲鏢鏢
8BC0 疊疊仰凝亮曉樂局曲榭玉桐杆倥勤均
8BD0 巾錦斤欣欽琴禁禽筋窳芹齒冷濃謹近
8BE0 金吟鏡九俱勾区狗玖矩苦龜軀艇駒貝
8BF0 愚虞噴空偶寓遇隔串掬釧屑屈

0123456789ABCDEF

8840
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88D0
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88F0

咿娃阿哀愛挨始逢葵茜穉燕握渥旭尊
芦膝梓庄稗級宛姐妲鮫絢黏或葉裕
安庠按暗案闌駁杏以伊位依偉匪秀萎
威尉惟愈愈易椅為畏異移維緯尙萎衣
罽遠溫區井亥域育郁磯一壹溢滋縉茨
芋嶽允印咽囡因姻引飲淫胤蔭

0123456789ABCDEF

8A40 魁晦械海灰界皆繪芥蟹開階貝凱劾外
8A50 咳害崖俄概澗禱葦街該謹核運籌迂垣
8A60 柿妨鈎訓駁各廂拉攏核核疑確確覺
8A70 角赫較郊閭隔革學岳染類嶺掛登程
8A80 樞擬鐵蔚割喝括括活活滑滑葛轄且聲
8A90 叶花樺鞠殊兜冤蒲釜謙墮鴨栢茅莖莖
8AA0 刈刃瓦乾侃冠寒刊勳勳卷喚堪燕官
8AB0 寬干幹患感憤憤換敢相桓抱款款汗漢
8AC0 潤海環甘監看羊管簡纓任翰肝艦莞觀
8AD0 諫賞遊避閭閑閑陪韓鎔鎔丸倉岸嶺玩
8AE0 癡眼岩駝厝雁頤頤願企伎危器器基奇
8AF0 嬉寄峻希疑忌揮機旗旗期棋棄

0123456789ABCDEF

8C40 掘窟窩靴齋窪熊隈桑粟綠桑欒君葉
8C50 訓擊羣郡卦袂祁係傾刑兄啓圭球型契
8C60 形徑忠慶慰懸揭摸敬景柱溪陞陷系經
8C70 繼業葦葦荊蚩計詣營輕頸頸芸迎歸
8C80 劇靴擊激際析紫欠汰深穴結血缺月件
8C90 俟倦健兼券劍窟圍堅嫌建齋膝拳擔檢
8CA0 權牽犬獸研硯硯硯泉肩見謙賢軒運鑽險
8CB0 頸駭駭元原厥幻張源源玄現絃絃言諺
8CC0 限乎個古呼回姑孤己崖弧戶姑枯湖狐
8CD0 糊袴股胡蕪虎誇跨跨鉅履履鼓五互伍午
8CE0 吳呂娛後御悟悟檣樹基語誤誤詞乞輕
8CF0 交倏侯候俾光公功効勾厚口向

0123456789ABCDEF

8D40 后喉坑垢好孔孝宏工巧巷幸庚庚康弘
 8D50 恒慨抗拘控攻昂晃更抗校櫻構江洪浩
 8D60 港溝甲呈硬橋概紅絨校綱拼考胫腔
 8D70 膏航荒行銜講賣購郊醉醜破鏡團降
 8D80 項香高鴻剛劫号合壕拷濼豪轟剋克刻
 8D90 告國毅節錫黑獄源腰匪忽惚骨拍込此
 8DA0 頃今困坤壘婚恨懇舌昆根捆濕痕紺良
 8DB0 魂些佐叉峻遽左差查沙礎砂許鑽裝坐
 8DC0 座挫債惟再最哉賽宏宰彰才探裁裁濟
 8DD0 災采犀碎砦祭祭細菜裁裁際劑在材罪
 8DE0 財呀坂阪堺梓肴咲崎崎磚鑪作削咋摔
 8DF0 昨朔朔窄策索錯礎礎琶琶匙册副

0123456789ABCDEF

8F40 宗就州修然捨洲秀秋終緯習吳舟兼衆
 8F50 靈豐嚴賴適酉酬集酬什住充十從戎柔
 8F60 汁泚豨縱重統叔夙宿祝縮肅邊熱出
 8F70 術遜俊峻春脛竣竣駿准循旬樞殉淳
 8F80 準潤厝純巡濼醇順旭初所暑喘渚庶渚
 8F90 署書署誌諸助叙女序徐恕錫除德儂勝
 8FA0 匠召升哨唱唱嘗獎賽媿宵符小少尚庄
 8FB0 床廠彰承抄招掌捷昇昌昭崑松梢樟樵
 8FC0 沼消涉湘燒焦煎症省碩確祥称草笑柱
 8FD0 紹肖尚蔞蕪蕪裳訟証詔詳象賞鑿鉦鍾
 8FE0 鏗障箱上丈丞乘冗刺城場讓娘常情擾
 8FF0 柔仗淨狀豐稷蒸讓 鑿鑿囑囑飾

0123456789ABCDEF

9140 機癩朕舄船蕪詮賤踐選選錢銃肉鮮前
 9150 善漸然全禪躄臆裡增暗咀措會曾楚狙
 9160 疏疎瓊祖租租素組蘇斯阻澗轔僭創双
 9170 巖倉費壯奏爽宋屬匠懇想搜搨搨搨
 9180 操早曾巢槍槍濼燥争癢相窓精繪綜綜
 9190 草莊彝昔業裝走送遺繪霸轄像增惜謬
 91A0 蕪腦造促備則即息捉束測足速俗展賊
 91B0 族統卒袖其掄存孫尊楨村遜他多太太
 91C0 怙運些妥脣打舵舵輪駝駝駝駝駝駝
 91D0 怙帶待忌艦艦營泰滯胎胎苔袋貸週違
 91E0 隊簾鯛代台大第醜醜瀉瀉瀉瀉卓宅托
 91F0 拆拓沃濯琢託譚濁濁諾茸鳳蝟只

0123456789ABCDEF

8E40 察捌擦擦札殺薩雜卑捌捌銷蝕血晒三
 8E50 叁叁山慘激激棧燦珊薩算纂壹嶺嶺酸
 8E60 窺新暫殘仕仔伺使制司史輻四士始師
 8E70 姿子屍市師志思指支攴斯施皆枝止
 8E80 死氏群社私糸紙紫肢涸至視詞詩試誌
 8E90 諮資賄雌飼幽事似侍兒字寺慈持時次
 8EA0 滋治爾靈痔礪示而耳目峙碎汐塵式識
 8EB0 鳴竺輔穴宰七叱敏失嫉室悉涖涖疾費
 8EC0 突葩豫僂柴芝屨茲續舍写射捨敷斜煮
 8ED0 社紗者虧車運乾邪借勺尺杓灼灼酌
 8EE0 錫若寂弱煮主取守手朱殊狩殊種腫趨
 8EF0 酒首備受呢壽授樹殺需囚收局

0123456789ABCDEF

9040 抗槓頑癩椒賦色融食蝕每尻伸信慢唇
 9050 娠寢穿心慎振新晉森極浸深申疹真神
 9060 乘神臣蕊薪親身辛進針震人仁刃塵
 9070 壬尋墨盡胃訊迅陣鞠筋錫須許國厨
 9080 還吹重帥推水炊煙淬翠寰遂醉鍾鍾隨
 9090 瑞麟崇嵩數樞趨難堪杉福普嶺雀福澄
 90A0 摺寸世源故是凄制勢牲征牲成政譽星
 90B0 曙樓栖正清牲生盛燁聖声製西賊誓請
 90C0 逝匿膏靜齊稅脫雙席惜咸斥昔析石積
 90D0 籍籍膏膏赤跡蹟碩切拙接掛折設窃節
 90E0 說雪絕舌押仙先千占宣專尖川戰扇麗
 90F0 桢柗泉淺洗染港煎煎旋穿箭箭

0123456789ABCDEF

9240 叩但達辰奪脫冥豎迴峒谷狸鶴鶴誰丹
 9250 單嶼坦坦探巨款淡濃炭短端畢綻耽胆
 9260 蛋蛋錢錢團墻斷斷暖權段舅談偵知地弛
 9270 恥智池痴稚置致難運馳樂箭竹筑蓄
 9280 逐秋奎茶嬌着中仲由忠抽屜柱注虫衷
 9290 註閉錫駐袴豬豬芋薯貯丁兆洩喋寵帖
 92A0 帳斤韦張彫徵徵挑暢朝潮際叮眺眺脈
 92B0 腸蝶調調超超跳跳長頂鷹勒步直朕沈珍
 92C0 賃鎔陳津壓樞樞拾追鎔鎔通塚冢掘視佃
 92D0 漬柘辻蕪穢穢穢穢穢穢穢穢穢穢
 92E0 亭低停偵剝貞至堤定帝底底廷弟悌抵
 92F0 挺挺槓汀礙槓槓縹縹訂勢蹄蹄

0 1 2 3 4 5 6 7 8 9 A B C D E F

9340 耶郵釘鼎泥淘拊敲滴的笛迢迢溺哲徹
 9350 撤撤迭鉄典境天展店添繩甜貼軋顛点
 9360 佷嚴灘田電兔吐堵塗妬屑徒斗杜渡登
 9370 莧楮途都級砥砥勢度士奴怒倒克冬
 9380 凍刀唐塔嫉套宕島嶋峰投搭東挑携標
 9390 盜淘湯燙灯燈当痘痔等答筒禱統到賣
 93A0 瀉潑討磨豆踏逃透途商頭騰騰騰動同
 93B0 堂導偉撞洞睡堂調萄道銅峠鴉匿得德
 93C0 流特舞禿鶯毒独詭柝樞凸突楸扇菓苦
 93D0 寅西潯頰屯倅敦沌豚遁頓吞豎鈍奈那
 93E0 内乍瓜妍謎灘捺鍋槌槌繼繼南楠軟軟
 93F0 汝二尼貳迓勾脈肉缸廿日乳入

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9540 鼻疼痺匹疋髭彦騰裳肘弱必舉至遍檢
 9550 姪媛紐百讓儀彪棟水瀝靛栗表評豹齋
 9560 措病秒苗錐錐蒜姪鷄品彬斌瀕瀕資寶
 9570 頻敏瓶不付埠夫婿富宮布府俯扶敷
 9580 斧普浮父符腐膏芙鴉負賦赴早附侮撫
 9590 武舞葡薰郛封楓風膏蕩伏副復幅服榘
 95A0 廢復覆滯弗弘沸仏物剛分吻噴噴憤份
 95B0 焚奮粉糞紛秀文閩丙併兵鼎崇平辨柄
 95C0 並蔽閉陞米百弊弊齋齋別營幾幾罷麥
 95D0 片篇篇辺返還便嬈嬈弁礙保舖鋪團捕
 95E0 步甫補輔輔隼隼轟轟葦葦母蕩蕩倅倅
 95F0 采報奉宝峰峯崩崩抱抱放放方朋

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9740 諭諭唯佑優勇友有幽悠憂揖有柚湧涌
 9750 猶猷由祐裕誘遊邑郵雄鵠夕予余与譽
 9760 與預預幼妖容甯揚甯擺擺榭榭核洋溶溶
 9770 用窯羊樞葉莖要器竊選陽養窓窓抑欲
 9780 沃浴翌翼淙淙羅羅裸米菓穎雷洛格落弱
 9790 乱亂嵐爛濫濫蘭覽利史履李梨理璣璣
 97A0 裏裡里難陸陸律率立梓綜略劉流溜琺留
 97B0 硫拉陸章脹侶慮旅慮了亮儻尙凌寮寮
 97C0 梁涼涼療療稜稜糧良諒諒暈隕隕頰力綜倫
 97D0 屢淋淋淋淋臨臨臨臨臨臨臨臨臨臨
 97E0 伶伶冷勵勵伶伶伶禮鈴鈴鈴鈴鈴鈴鈴
 97F0 歷列劣烈裂裂廉廉戀戀憐憐漣漣漣漣

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9440 如尿管妊妊忍忍滿滿補補寧寧猶猶熱熱年念
 9450 捻捻燃燃粘粘乃酒之壘壘惱惱濃濃納能腦腦農
 9460 覷覷蚤蚤巴把播播翻把波派派雷破婆娑芭馬俳
 9470 旣拜排枚杯盃牌牌背肺輩配倍塔塔媒梅
 9480 棋棋嶺嶺買買壳壳陪陪這這輝輝矧矧萩伯剝博拍
 9490 柏柏白白箔箔柏柏薄迫曝曝爆爆燻燻駁駁麥麥
 94A0 箱箱恰恰響響管管權權肌肌烟烟扇八鉢鉢洗洗號號
 94B0 伐伐罰罰拔拔茂茂闕闕嶠嶠塢塢給給伴伴判判半半反反叛叛
 94C0 撥撥斑斑斑斑汜汜汎汎版版犯犯班班畔畔繁繁殺殺藩藩範範禾禾煩煩
 94D0 煩煩飯飯晚晚晚晚番番盤盤蕃蕃壘壘匪匪否否妃妃庇庇彼悲
 94E0 屏屏批批披披斐斐比必慮慮皮皮穉穉耕耕罷罷被被排排費費
 94F0 避避非飛飛隨隨龜龜尾尾微微批批世世毘毘磨磨美

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9640 法泡烹飽糴飽芳萌蓬蓬煥煥訪訪場場邦鋒飽
 9650 鳳鳳賜賜之亡傍傍劫劫妨妨帽帽忙忙房房暴暴某偉
 9660 冒冒紡紡防防勝勝謀謀銳銳錐錐防防吹吹頰頰北北僕僕下墨墨
 9670 朴朴牧牧陸陸陸陸卸卸勃勃沒沒殆殆漏漏齊齊本本翻凡盆
 9680 摩摩腐腐麻麻埋埋味味味枚每每哩哩檣檣廣廣枕枕駢駢
 9690 鏘鏘樹樹亦亦僕僕又抹抹沫沫迄迄尢爾爾濼濼憐憐清清漫漫
 96A0 蔓蔓味味味味味味味味味味味味味味味味味味味味味味味味
 96B0 眠眠務務夢夢無無牟牟矛矛孳孳孳孳孳孳孳孳孳孳孳孳孳孳孳孳孳孳
 96C0 迷迷銘銘鳴鳴姪姪軋軋減減免免檉檉檉檉面面麵麵摸摸茂茂妄妄
 96D0 孟孟毛毛猛猛猛猛網網耗耗家家儲儲木木赫赫目目李李勿勿餅餅尤尤戾戾
 96E0 栩栩嵐嵐崗崗悶悶絞絞鬥鬥勾勾也也治治夜夜爺爺耶耶野野弥弥矢矢厄厄
 96F0 役役約約萊萊詛詛醒醒柳柳數數籠籠輸輸愈愈油油愈

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9840 蕙蕙連連練練呂呂輪輪爐爐賂賂露露露露露露露露露露露露露露露露露露
 9850 榔榔滾滾滾滾牢牢狼狼羆羆老老舞舞舞舞舞舞舞舞舞舞舞舞舞舞舞舞舞舞
 9860 倦倦和和話話歪歪賄賄賄賄感感梓梓驚驚互互舞舞舞舞舞舞舞舞舞舞舞舞
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 巧巧丕丕个个丕丕、丕丕丕丕丕丕丕丕丕丕丕丕丕丕丕丕丕丕丕丕丕丕丕丕
 丁丁亞亞亞亞一亢亢泉泉曹曹从从仄仄仆仆仗仗仗仗仗仗仗仗仗仗仗仗仗仗
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9940 僉僨僢僣僥僥僥僥僥僥僥僥僥僥僥僥僥僥僥僥僥僥僥
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 9970 僥僥僥僥僥僥僥僥僥僥僥僥僥僥僥僥僥僥僥僥
 9980 僥僥僥僥僥僥僥僥僥僥僥僥僥僥僥僥僥僥僥僥
 9990 僥僥僥僥僥僥僥僥僥僥僥僥僥僥僥僥僥僥僥僥
 99A0 僥僥僥僥僥僥僥僥僥僥僥僥僥僥僥僥僥僥僥僥
 99B0 僥僥僥僥僥僥僥僥僥僥僥僥僥僥僥僥僥僥僥僥
 99C0 僥僥僥僥僥僥僥僥僥僥僥僥僥僥僥僥僥僥僥僥
 99D0 僥僥僥僥僥僥僥僥僥僥僥僥僥僥僥僥僥僥僥僥
 99E0 僥僥僥僥僥僥僥僥僥僥僥僥僥僥僥僥僥僥僥僥
 99F0 僥僥僥僥僥僥僥僥僥僥僥僥僥僥僥僥僥僥僥僥

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9B40 奸的收復候候妯妯娣娣妍妍妯妯娥娥娣娣
 9B50 娜娜娣娣娣娣娣娣娣娣娣娣娣娣娣娣娣娣
 9B60 娣娣娣娣娣娣娣娣娣娣娣娣娣娣娣娣娣娣
 9B70 娣娣子孕孕孕孕孕孕孩孩孩孩孩孩孩孩
 9B80 它它寬寬寬寬寬寬寬寬寬寬寬寬寬寬寬寬寬寬
 9B90 寬寬將將專專對對太太彩彩尹尹屁屁屎屎屎屎
 9BA0 屎屎屎屎屎屎屎屎屎屎屎屎屎屎屎屎屎屎屎屎
 9BB0 屎屎屎屎屎屎屎屎屎屎屎屎屎屎屎屎屎屎屎屎
 9BC0 屎屎屎屎屎屎屎屎屎屎屎屎屎屎屎屎屎屎屎屎
 9BD0 屎屎屎屎屎屎屎屎屎屎屎屎屎屎屎屎屎屎屎屎
 9BE0 屎屎屎屎屎屎屎屎屎屎屎屎屎屎屎屎屎屎屎屎
 9BF0 屎屎屎屎屎屎屎屎屎屎屎屎屎屎屎屎屎屎屎屎

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9D40 婁婁戰戰戰戰戰戰戰戰戰戰戰戰戰戰戰戰戰戰
 9D50 挾挾挾挾挾挾挾挾挾挾挾挾挾挾挾挾挾挾挾
 9D60 拜拜拜拜拜拜拜拜拜拜拜拜拜拜拜拜拜拜拜拜
 9D70 挾挾挾挾挾挾挾挾挾挾挾挾挾挾挾挾挾挾挾
 9D80 挾挾挾挾挾挾挾挾挾挾挾挾挾挾挾挾挾挾挾
 9D90 搨搨搨搨搨搨搨搨搨搨搨搨搨搨搨搨搨搨搨
 9DA0 搨搨搨搨搨搨搨搨搨搨搨搨搨搨搨搨搨搨搨
 9DB0 搨搨搨搨搨搨搨搨搨搨搨搨搨搨搨搨搨搨搨
 9DC0 攷攷攷攷攷攷攷攷攷攷攷攷攷攷攷攷攷攷攷
 9DD0 斷斷斷斷斷斷斷斷斷斷斷斷斷斷斷斷斷斷斷斷
 9DE0 查查呢呢呢呢呢呢呢呢呢呢呢呢呢呢呢呢呢呢
 9DF0 晰晰晰晰晰晰晰晰晰晰晰晰晰晰晰晰晰晰晰

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9A40 呷呷呷呷呷呷呷呷呷呷呷呷呷呷呷呷呷呷呷
 9A50 呷呷呷呷呷呷呷呷呷呷呷呷呷呷呷呷呷呷呷
 9A60 呷呷呷呷呷呷呷呷呷呷呷呷呷呷呷呷呷呷呷
 9A70 呷呷呷呷呷呷呷呷呷呷呷呷呷呷呷呷呷呷呷
 9A80 呷呷呷呷呷呷呷呷呷呷呷呷呷呷呷呷呷呷呷
 9A90 呷呷呷呷呷呷呷呷呷呷呷呷呷呷呷呷呷呷呷
 9AA0 呷呷呷呷呷呷呷呷呷呷呷呷呷呷呷呷呷呷呷
 9AB0 呷呷呷呷呷呷呷呷呷呷呷呷呷呷呷呷呷呷呷
 9AC0 呷呷呷呷呷呷呷呷呷呷呷呷呷呷呷呷呷呷呷
 9AD0 呷呷呷呷呷呷呷呷呷呷呷呷呷呷呷呷呷呷呷
 9AE0 呷呷呷呷呷呷呷呷呷呷呷呷呷呷呷呷呷呷呷
 9AF0 呷呷呷呷呷呷呷呷呷呷呷呷呷呷呷呷呷呷呷

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9C40 廖廖腐腐腐腐腐腐腐腐腐腐腐腐腐腐腐腐腐腐
 9C50 弄弄弄弄弄弄弄弄弄弄弄弄弄弄弄弄弄弄弄弄
 9C60 象象象象象象象象象象象象象象象象象象象象
 9C70 徕徕徕徕徕徕徕徕徕徕徕徕徕徕徕徕徕徕徕
 9C80 估估估估估估估估估估估估估估估估估估估估
 9C90 悛悛悛悛悛悛悛悛悛悛悛悛悛悛悛悛悛悛悛悛
 9CA0 悛悛悛悛悛悛悛悛悛悛悛悛悛悛悛悛悛悛悛悛
 9CB0 悛悛悛悛悛悛悛悛悛悛悛悛悛悛悛悛悛悛悛悛
 9CC0 悛悛悛悛悛悛悛悛悛悛悛悛悛悛悛悛悛悛悛悛
 9CD0 悛悛悛悛悛悛悛悛悛悛悛悛悛悛悛悛悛悛悛悛
 9CE0 悛悛悛悛悛悛悛悛悛悛悛悛悛悛悛悛悛悛悛悛
 9CF0 悛悛悛悛悛悛悛悛悛悛悛悛悛悛悛悛悛悛悛悛

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9E40 畔畔畔畔畔畔畔畔畔畔畔畔畔畔畔畔畔畔畔畔
 9E50 霸霸霸霸霸霸霸霸霸霸霸霸霸霸霸霸霸霸霸霸
 9E60 杼杼杼杼杼杼杼杼杼杼杼杼杼杼杼杼杼杼杼杼
 9E70 柝柝柝柝柝柝柝柝柝柝柝柝柝柝柝柝柝柝
 9E80 梳梳梳梳梳梳梳梳梳梳梳梳梳梳梳梳梳梳梳梳
 9E90 梵梵梵梵梵梵梵梵梵梵梵梵梵梵梵梵梵梵梵梵
 9EA0 夔夔夔夔夔夔夔夔夔夔夔夔夔夔夔夔夔夔夔夔夔
 9EB0 榑榑榑榑榑榑榑榑榑榑榑榑榑榑榑榑榑榑
 9EC0 榑榑榑榑榑榑榑榑榑榑榑榑榑榑榑榑榑榑
 9ED0 榑榑榑榑榑榑榑榑榑榑榑榑榑榑榑榑榑榑
 9EE0 榑榑榑榑榑榑榑榑榑榑榑榑榑榑榑榑榑榑
 9EF0 榑榑榑榑榑榑榑榑榑榑榑榑榑榑榑榑榑榑

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E140 葵蕨槌榔榨榨榔榔榔榔榔榔榔榔榔榔榔
 E150 葵榿槌榔榔榔榔榔榔榔榔榔榔榔榔榔榔
 E160 欵欵欵欵欵欵欵欵欵欵欵欵欵欵欵欵欵
 E170 痺痺痺痺安般般般般般般般般般般般
 E180 麗麗麗麗氣氣氣氣氣氣氣氣氣氣氣氣氣
 E190 汾汾汾沒沒沒沒沒沒沒沒沒沒沒沒沒沒
 E1A0 泛泛泛泛泛泛泛泛泛泛泛泛泛泛泛泛泛
 E1B0 涓涓涓涓涓涓涓涓涓涓涓涓涓涓涓涓涓涓
 E1C0 涓涓涓涓涓涓涓涓涓涓涓涓涓涓涓涓涓涓
 E1D0 涓涓涓涓涓涓涓涓涓涓涓涓涓涓涓涓涓涓
 E1E0 涓涓涓涓涓涓涓涓涓涓涓涓涓涓涓涓涓涓
 E1F0 涓涓涓涓涓涓涓涓涓涓涓涓涓涓涓涓涓涓

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E140 軋軋軋軋軋軋軋軋軋軋軋軋軋軋軋軋軋
 E150 軋軋軋軋軋軋軋軋軋軋軋軋軋軋軋軋軋
 E160 軋軋軋軋軋軋軋軋軋軋軋軋軋軋軋軋軋
 E170 軋軋軋軋軋軋軋軋軋軋軋軋軋軋軋軋軋
 E180 軋軋軋軋軋軋軋軋軋軋軋軋軋軋軋軋軋
 E190 軋軋軋軋軋軋軋軋軋軋軋軋軋軋軋軋軋
 E1A0 軋軋軋軋軋軋軋軋軋軋軋軋軋軋軋軋軋
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 E1F0 軋軋軋軋軋軋軋軋軋軋軋軋軋軋軋軋軋

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E340 村祛批素綱絨絨絨絨絨絨絨絨絨絨絨絨絨
 E350 軋軋軋軋軋軋軋軋軋軋軋軋軋軋軋軋軋
 E360 絨絨絨絨絨絨絨絨絨絨絨絨絨絨絨絨絨
 E370 絨絨絨絨絨絨絨絨絨絨絨絨絨絨絨絨絨
 E380 絨絨絨絨絨絨絨絨絨絨絨絨絨絨絨絨絨
 E390 絨絨絨絨絨絨絨絨絨絨絨絨絨絨絨絨絨
 E3A0 絨絨絨絨絨絨絨絨絨絨絨絨絨絨絨絨絨
 E3B0 絨絨絨絨絨絨絨絨絨絨絨絨絨絨絨絨絨
 E3C0 絨絨絨絨絨絨絨絨絨絨絨絨絨絨絨絨絨
 E3D0 絨絨絨絨絨絨絨絨絨絨絨絨絨絨絨絨絨
 E3E3 絨絨絨絨絨絨絨絨絨絨絨絨絨絨絨絨絨
 E3F0 絨絨絨絨絨絨絨絨絨絨絨絨絨絨絨絨絨

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E040 滌滌滌滌滌滌滌滌滌滌滌滌滌滌滌滌滌
 E050 滌滌滌滌滌滌滌滌滌滌滌滌滌滌滌滌滌
 E060 滌滌滌滌滌滌滌滌滌滌滌滌滌滌滌滌滌
 E070 滌滌滌滌滌滌滌滌滌滌滌滌滌滌滌滌滌
 E080 滌滌滌滌滌滌滌滌滌滌滌滌滌滌滌滌滌
 E090 滌滌滌滌滌滌滌滌滌滌滌滌滌滌滌滌滌
 E0A0 滌滌滌滌滌滌滌滌滌滌滌滌滌滌滌滌滌
 E0B0 滌滌滌滌滌滌滌滌滌滌滌滌滌滌滌滌滌
 E0C0 滌滌滌滌滌滌滌滌滌滌滌滌滌滌滌滌滌
 E0D0 滌滌滌滌滌滌滌滌滌滌滌滌滌滌滌滌滌
 E0E0 滌滌滌滌滌滌滌滌滌滌滌滌滌滌滌滌滌
 E0F0 滌滌滌滌滌滌滌滌滌滌滌滌滌滌滌滌滌

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E240 破破破破破破破破破破破破破破破破破
 E250 破破破破破破破破破破破破破破破破破
 E260 破破破破破破破破破破破破破破破破破
 E270 破破破破破破破破破破破破破破破破破
 E280 破破破破破破破破破破破破破破破破破
 E290 破破破破破破破破破破破破破破破破破
 E2A0 破破破破破破破破破破破破破破破破破
 E2B0 破破破破破破破破破破破破破破破破破
 E2C0 破破破破破破破破破破破破破破破破破
 E2D0 破破破破破破破破破破破破破破破破破
 E2E2 破破破破破破破破破破破破破破破破破
 E2F0 破破破破破破破破破破破破破破破破破

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E440 隋朕脾脾脾脾脾脾脾脾脾脾脾脾脾脾脾
 E450 膠膠膠膠膠膠膠膠膠膠膠膠膠膠膠膠膠
 E460 膠膠膠膠膠膠膠膠膠膠膠膠膠膠膠膠膠
 E470 膠膠膠膠膠膠膠膠膠膠膠膠膠膠膠膠膠
 E480 膠膠膠膠膠膠膠膠膠膠膠膠膠膠膠膠膠
 E490 膠膠膠膠膠膠膠膠膠膠膠膠膠膠膠膠膠
 E4A0 膠膠膠膠膠膠膠膠膠膠膠膠膠膠膠膠膠
 E4B0 膠膠膠膠膠膠膠膠膠膠膠膠膠膠膠膠膠
 E4C0 膠膠膠膠膠膠膠膠膠膠膠膠膠膠膠膠膠
 E4D0 膠膠膠膠膠膠膠膠膠膠膠膠膠膠膠膠膠
 E4E4 膠膠膠膠膠膠膠膠膠膠膠膠膠膠膠膠膠
 E4F0 膠膠膠膠膠膠膠膠膠膠膠膠膠膠膠膠膠

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E540 藝葉筠筠筠筠筠筠筠筠筠筠筠筠筠筠筠筠筠筠
E550 栲栲栲栲栲栲栲栲栲栲栲栲栲栲栲栲栲栲
E560 藕藕藕藕藕藕藕藕藕藕藕藕藕藕藕藕藕藕
E570 蚪蚪蚪蚪蚪蚪蚪蚪蚪蚪蚪蚪蚪蚪蚪蚪蚪蚪蚪
E580 蚊蚊蚊蚊蚊蚊蚊蚊蚊蚊蚊蚊蚊蚊蚊蚊蚊蚊蚊
E590 蟪蟪蟪蟪蟪蟪蟪蟪蟪蟪蟪蟪蟪蟪蟪蟪蟪蟪蟪蟪蟪
E6A0 蟪蟪蟪蟪蟪蟪蟪蟪蟪蟪蟪蟪蟪蟪蟪蟪蟪蟪蟪蟪蟪蟪
E5B0 蟪蟪蟪蟪蟪蟪蟪蟪蟪蟪蟪蟪蟪蟪蟪蟪蟪蟪蟪蟪蟪蟪
E5C0 蟪蟪蟪蟪蟪蟪蟪蟪蟪蟪蟪蟪蟪蟪蟪蟪蟪蟪蟪蟪蟪蟪
E5D0 袍袍袍袍袍袍袍袍袍袍袍袍袍袍袍袍袍袍袍
E5E5 衿衿衿衿衿衿衿衿衿衿衿衿衿衿衿衿衿衿衿衿
E5F0 衿衿衿衿衿衿衿衿衿衿衿衿衿衿衿衿衿衿衿衿

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E740 蹇蹇蹇蹇蹇蹇蹇蹇蹇蹇蹇蹇蹇蹇蹇蹇蹇蹇蹇蹇
E750 蹇蹇蹇蹇蹇蹇蹇蹇蹇蹇蹇蹇蹇蹇蹇蹇蹇蹇蹇蹇
E760 蹇蹇蹇蹇蹇蹇蹇蹇蹇蹇蹇蹇蹇蹇蹇蹇蹇蹇蹇蹇
E770 蹇蹇蹇蹇蹇蹇蹇蹇蹇蹇蹇蹇蹇蹇蹇蹇蹇蹇蹇蹇
E780 蹇蹇蹇蹇蹇蹇蹇蹇蹇蹇蹇蹇蹇蹇蹇蹇蹇蹇蹇蹇
E790 蹇蹇蹇蹇蹇蹇蹇蹇蹇蹇蹇蹇蹇蹇蹇蹇蹇蹇蹇蹇
E7A0 蹇蹇蹇蹇蹇蹇蹇蹇蹇蹇蹇蹇蹇蹇蹇蹇蹇蹇蹇蹇
E7B0 蹇蹇蹇蹇蹇蹇蹇蹇蹇蹇蹇蹇蹇蹇蹇蹇蹇蹇蹇蹇
E7C0 蹇蹇蹇蹇蹇蹇蹇蹇蹇蹇蹇蹇蹇蹇蹇蹇蹇蹇蹇蹇
E7D0 蹇蹇蹇蹇蹇蹇蹇蹇蹇蹇蹇蹇蹇蹇蹇蹇蹇蹇蹇蹇
E7E7 鈞鈞鈞鈞鈞鈞鈞鈞鈞鈞鈞鈞鈞鈞鈞鈞鈞鈞鈞鈞鈞鈞
E7F0 鈞鈞鈞鈞鈞鈞鈞鈞鈞鈞鈞鈞鈞鈞鈞鈞鈞鈞鈞鈞鈞鈞

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E940 頤頤頤頤頤頤頤頤頤頤頤頤頤頤頤頤頤頤頤頤
E950 餘餘餘餘餘餘餘餘餘餘餘餘餘餘餘餘餘餘餘
E960 餘餘餘餘餘餘餘餘餘餘餘餘餘餘餘餘餘餘餘
E970 駱駱駱駱駱駱駱駱駱駱駱駱駱駱駱駱駱駱駱駱
E980 駱駱駱駱駱駱駱駱駱駱駱駱駱駱駱駱駱駱駱駱
E990 龔龔龔龔龔龔龔龔龔龔龔龔龔龔龔龔龔龔龔龔龔龔龔龔龔
E9A0 龔龔龔龔龔龔龔龔龔龔龔龔龔龔龔龔龔龔龔龔龔龔龔龔龔
E9B0 魏魏魏魏魏魏魏魏魏魏魏魏魏魏魏魏魏魏魏魏
E9C0 魏魏魏魏魏魏魏魏魏魏魏魏魏魏魏魏魏魏魏魏
E9D0 魏魏魏魏魏魏魏魏魏魏魏魏魏魏魏魏魏魏魏魏
E9E9 魏魏魏魏魏魏魏魏魏魏魏魏魏魏魏魏魏魏魏魏
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E640 標標標標標標標標標標標標標標標標標標標
E650 覓覓覓覓覓覓覓覓覓覓覓覓覓覓覓覓覓覓覓
E660 誄誄誄誄誄誄誄誄誄誄誄誄誄誄誄誄誄誄誄誄
E670 誄誄誄誄誄誄誄誄誄誄誄誄誄誄誄誄誄誄誄誄
E680 誄誄誄誄誄誄誄誄誄誄誄誄誄誄誄誄誄誄誄誄
E690 誄誄誄誄誄誄誄誄誄誄誄誄誄誄誄誄誄誄誄誄
E6A0 誄誄誄誄誄誄誄誄誄誄誄誄誄誄誄誄誄誄誄誄
E6B0 貌貌貌貌貌貌貌貌貌貌貌貌貌貌貌貌貌貌貌貌
E6C0 膊膊膊膊膊膊膊膊膊膊膊膊膊膊膊膊膊膊膊膊
E6D0 赴赴赴赴赴赴赴赴赴赴赴赴赴赴赴赴赴赴赴赴赴
E6E6 謁謁謁謁謁謁謁謁謁謁謁謁謁謁謁謁謁謁謁謁
E6F0 謁謁謁謁謁謁謁謁謁謁謁謁謁謁謁謁謁謁謁謁

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E840 鋪鋪鋪鋪鋪鋪鋪鋪鋪鋪鋪鋪鋪鋪鋪鋪鋪鋪鋪鋪
E850 鋪鋪鋪鋪鋪鋪鋪鋪鋪鋪鋪鋪鋪鋪鋪鋪鋪鋪鋪鋪
E860 鋪鋪鋪鋪鋪鋪鋪鋪鋪鋪鋪鋪鋪鋪鋪鋪鋪鋪鋪鋪
E870 鋪鋪鋪鋪鋪鋪鋪鋪鋪鋪鋪鋪鋪鋪鋪鋪鋪鋪鋪鋪
E880 關關關關關關關關關關關關關關關關關關關關
E890 關關關關關關關關關關關關關關關關關關關關
E8A0 陟陟陟陟陟陟陟陟陟陟陟陟陟陟陟陟陟陟陟陟陟
E8B0 佳佳佳佳佳佳佳佳佳佳佳佳佳佳佳佳佳佳佳佳
E8C0 弄弄弄弄弄弄弄弄弄弄弄弄弄弄弄弄弄弄弄弄
E8D0 跑跑跑跑跑跑跑跑跑跑跑跑跑跑跑跑跑跑跑跑
E8E8 鞴鞴鞴鞴鞴鞴鞴鞴鞴鞴鞴鞴鞴鞴鞴鞴鞴鞴鞴
E8F0 頡頡頡頡頡頡頡頡頡頡頡頡頡頡頡頡頡頡頡頡頡頡

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EA40 搗搗搗搗搗搗搗搗搗搗搗搗搗搗搗搗搗搗搗搗
EA50 鷓鷓鷓鷓鷓鷓鷓鷓鷓鷓鷓鷓鷓鷓鷓鷓鷓鷓鷓鷓
EA60 鷓鷓鷓鷓鷓鷓鷓鷓鷓鷓鷓鷓鷓鷓鷓鷓鷓鷓鷓鷓
EA70 麪麪麪麪麪麪麪麪麪麪麪麪麪麪麪麪麪麪麪麪
EA80 微微微微微微微微微微微微微微微微微微微微
EA90 此此此此此此此此此此此此此此此此此此此此
EA9A 摸摸摸摸摸摸摸摸摸摸摸摸摸摸摸摸摸摸摸摸
EAB0 摸摸摸摸摸摸摸摸摸摸摸摸摸摸摸摸摸摸摸摸
EAC0 摸摸摸摸摸摸摸摸摸摸摸摸摸摸摸摸摸摸摸摸
EAD0 摸摸摸摸摸摸摸摸摸摸摸摸摸摸摸摸摸摸摸摸
EAEA 摸摸摸摸摸摸摸摸摸摸摸摸摸摸摸摸摸摸摸摸
EAF0 摸摸摸摸摸摸摸摸摸摸摸摸摸摸摸摸摸摸摸摸

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A640 共再冰列刪刪刪刪劣陋匡匠印危古吏
A650 同吊吐吁时各向名合吃后吃因回团
A660 圳地在圭坊地圩夙多夷妄奸妃奸她
A670 如豹字存字守宅安寺尖吃州帆井年

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A840 构宗步每求求渺沁沈沈沈沈汪决沫汰
A850 沌汨冲没汽沫汲汾沅沅沅沅沅沅沅沅
A860 灼炎灸穿社地狄狂哉雨雨男旬宅町矣
A870 私秀秀究系罕尚育肝肘江肚育良芒

A880

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社祀部乘袖空穹竺糾罔莞半耆肺肺肢
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返返返返返返返返返返返返返返返返

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A740 作你伯低伶余佻伏克兔兵洽冷别
A750 判判判判判判判判判判判判判判判
A760 喇吧呆呃吴呈吕君吩告吹吻吸吻吻
A770 吠吠吠吠吠吠吠吠吠吠吠吠吠吠吠
A780

A790

A7A0

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A940 咖吧咕咕咕咕咕咕咕咕咕咕咕咕咕
A950 周昨命咎咎咎咎咎咎咎咎咎咎咎咎咎
A960 奈奄奄萎萎萎萎萎萎萎萎萎萎萎
A970 媧媧媧媧媧媧媧媧媧媧媧媧媧媧媧媧
A980

A990

A9A0

A9B0

A9C0

A9D0

A9E0

A9F0

国吧网岸岩岫岱岳溶溶喇帕帛帛帛幸
庚店府底直廷弦弧驾往征拂被恣忠忽
念忿快征祛祛祛祛祛祛祛祛祛祛祛
房昊所承拉样社报拂拂拂拂拂拂拂
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AB40 跛佳雨古非亟亨亮信侵候便快俯俯保
AB50 促促促促促促促促促促促促促促促
AB60 宵冠冠冠冠冠冠冠冠冠冠冠冠冠冠冠
AB70 厚厚厚厚厚厚厚厚厚厚厚厚厚厚厚
AB80

AB90

ABA0

ABB0

ABC0

ABD0

ABE0

ABF0

哄哈咯吧咄咄咄咄咄咄咄咄咄咄咄
城垮垮突奕奕奕奕奕奕奕奕奕奕奕
姚姦姦姦姦姦姦姦姦姦姦姦姦姦姦
峒巷巷制制制制制制制制制制制制
徇徇徇徇徇徇徇徇徇徇徇徇徇徇徇
制制制制制制制制制制制制制制制

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AC40 採括拾洽排排致放所旋既春昭味是
AC50 星昨暑時昌柿染柱柔某東架枯細棍柯
AC60 柄柑榜袖查栢枵枵枵枵枵枵抵拆架歪殃
AC70 殆殺毒吐氣氣洋洲洪流津瀧耳洞洗

AC80
AC90

ACA0 活洽派灣各溪迥洩洗洩洩洩洩油炫
ACB0 為兩炬刺炭炸炮炮爇爇爇性特抵狩獵狡沾
ACC0 珊玻玲珍珀琪基甞甞甞甞甞甞疥疥疥疥
ACD0 痰突皆皇飯盆益盃盃盃盃省眈相眉看盾盼
ACE0 眇眇眇研砌砌砌砌砌砌砌砌砌砌砌砌秋穿
ACF0 突芋芋芋孫仔紅紅紅紅紅紅紅紅紅紅

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AE40 哦囉呀噴噴噴團團團團團團團團團團團團
AE50 娉娘娥娥娥娥娥娥娥娥娥娥娥娥嗶嗶嗶嗶嗶
AE60 害家宴宮澗宮宸射厲展展展展展展展展展展
AE70 峰島埃規差席前車庭庭庭庭庭庭庭庭庭庭
AE80

AE90

AEA0 恣聰恐懇恭恩息憇憇憇憇憇憇憇憇憇憇憇
AEB0 扇拳擊拿揆揆揆揆揆揆揆揆揆揆揆揆揆揆
AEC0 挫技早膠放枚枚枚旁旅時晉晏冕卿卿卿卿
AED0 寔書朔聯聯聯聯聯聯聯聯聯聯聯聯聯聯聯聯
AEE0 泉桑栽柴桐梁格桃株梅梅梅梅梅梅梅梅梅
AEF0 氣氣氣氣氣氣氣氣氣氣氣氣氣氣氣氣氣氣

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B040 虔虔虔虔虔虔虔虔虔虔虔虔虔虔虔虔虔虔
B050 計計計計計計計計計計計計計計計計計計
B060 躬躬躬躬躬躬躬躬躬躬躬躬躬躬躬躬躬躬
B070 邪邪邪邪邪邪邪邪邪邪邪邪邪邪邪邪邪邪
B080

B090

B0A0 障障障障障障障障障障障障障障障障障障
B0B0 偽停假假若做倅倅倅倅倅倅倅倅倅倅倅倅
B0C0 儀儀儀儀儀儀儀儀儀儀儀儀儀儀儀儀儀儀
B0D0 籟參參商商時時時時時時時時時時時時時
B0E0 囉囉囉囉囉囉囉囉囉囉囉囉囉囉囉囉囉囉
B0F0 埠埠埠埠埠埠埠埠埠埠埠埠埠埠埠埠埠埠

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AD40 耐要端耶非齊耶齊齊齊齊齊齊齊齊齊齊齊
AD50 致致致致致致致致致致致致致致致致致致
AD60 甘甘甘甘甘甘甘甘甘甘甘甘甘甘甘甘甘甘
AD70 計計計計計計計計計計計計計計計計計計
AD80

AD90

ADA0 送迫迫迫迫迫迫迫迫迫迫迫迫迫迫迫迫迫
ADB0 障障障障障障障障障障障障障障障障障障
ADC0 傲傲傲傲傲傲傲傲傲傲傲傲傲傲傲傲傲傲
ADD0 倨俱借個個個個個個個個個個個個個個
ADE0 冢冢冢冢冢冢冢冢冢冢冢冢冢冢冢冢冢冢冢冢
ADF0 唐唐唐唐唐唐唐唐唐唐唐唐唐唐唐唐唐唐

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AF40 濯涉淨潔浴浴浴浴浴浴浴浴浴浴浴浴浴浴
AF50 烈烈烈烈烈烈烈烈烈烈烈烈烈烈烈烈烈烈
AF60 畔畔畔畔畔畔畔畔畔畔畔畔畔畔畔畔畔畔
AF70 炮炮炮炮炮炮炮炮炮炮炮炮炮炮炮炮炮炮
AF80

AF90

AFA0 砥砥砥砥砥砥砥砥砥砥砥砥砥砥砥砥砥砥
AFB0 林棟棟棟棟棟棟棟棟棟棟棟棟棟棟棟棟棟棟
AFC0 素素素素素素素素素素素素素素素素素素
AFD0 耘耕耕耕耕耕耕耕耕耕耕耕耕耕耕耕耕耕
AFE0 能能能能能能能能能能能能能能能能能能
AFF0 筋筋筋筋筋筋筋筋筋筋筋筋筋筋筋筋筋筋

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B140 娉娉娉娉娉娉娉娉娉娉娉娉娉娉娉娉娉娉
B150 屣屣屣屣屣屣屣屣屣屣屣屣屣屣屣屣屣屣
B160 常常常常常常常常常常常常常常常常常常
B170 從從從從從從從從從從從從從從從從從從
B180

B190

B1A0 情情情情情情情情情情情情情情情情情情
B1B0 掠掠掠掠掠掠掠掠掠掠掠掠掠掠掠掠掠掠
B1C0 推推推推推推推推推推推推推推推推推推
B1D0 教教教教教教教教教教教教教教教教教教
B1E0 唔唔唔唔唔唔唔唔唔唔唔唔唔唔唔唔唔
B1F0 梗梗梗梗梗梗梗梗梗梗梗梗梗梗梗梗梗梗

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3240 毫瑤氈瀉涼淳涼液淡滿漸添淺清淇淋
 3250 涯瀝瀾澗漣瀾澀澀漸澀漣澀澀澀澀澀
 3260 深淮淨瀉瀉瀉瀉瀉瀉瀉瀉瀉瀉瀉瀉瀉瀉
 3270 犁犄犄犄犄犄淨率取理理理理理理理理
 3280
 3290
 32A0 盜甜適略吐畢異疏痔痕痲瘡瘰咬盤
 32B0 盒醬眷墩琳琳琳琳琳琳琳琳琳琳琳琳
 32C0 窠立笨笛第符竺笄竿粒粗粒粒粒粒粒
 32D0 紹緋緋緋緋緋緋緋緋緋緋緋緋緋緋緋
 32E0 碧御吟肺肺肺肺肺肺肺肺肺肺肺肺肺
 32F0 莞萃萃萃萃萃萃萃萃萃萃萃萃萃萃萃

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3440 好強為媒媒媒媒媒媒媒媒媒媒媒媒
 3450 崗崗崗崗崗崗崗崗崗崗崗崗崗崗崗崗
 3460 循徑慈慈慈慈慈慈慈慈慈慈慈慈慈
 3470 恆恆恆恆恆恆恆恆恆恆恆恆恆恆恆
 3480
 3490
 34A0 掛罷罷罷掛掛掛掛掛掛掛掛掛掛掛掛
 34B0 敦敦敦敦敦敦敦敦敦敦敦敦敦敦敦敦
 34C0 替替替替替替替替替替替替替替替替
 34D0 律律律律律律律律律律律律律律律律
 34E0 瑣氣氣氣港港港港港港港港港港港港
 34F0 湘湘湘湘湘湘湘湘湘湘湘湘湘湘湘湘

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3640 詔詔詔詔詔詔詔詔詔詔詔詔詔詔詔詔
 3650 賀賀賀賀賀賀賀賀賀賀賀賀賀賀賀賀
 3660 踏踏踏踏踏踏踏踏踏踏踏踏踏踏踏踏
 3670 酥酥酥酥酥酥酥酥酥酥酥酥酥酥酥酥
 3680
 3690
 36A0 問問問問問問問問問問問問問問問問
 36B0 集集集集集集集集集集集集集集集集
 36C0 黃黃黃黃黃黃黃黃黃黃黃黃黃黃黃黃
 36D0 劑劑劑劑劑劑劑劑劑劑劑劑劑劑劑劑
 36E0 靜靜靜靜靜靜靜靜靜靜靜靜靜靜靜靜
 36F0 塔塔塔塔塔塔塔塔塔塔塔塔塔塔塔塔

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3340 簡簡簡簡簡簡簡簡簡簡簡簡簡簡簡簡
 3350 裂裂裂裂裂裂裂裂裂裂裂裂裂裂裂裂
 3360 訴訴訴訴訴訴訴訴訴訴訴訴訴訴訴訴
 3370 道道道道道道道道道道道道道道道道
 3380
 3390
 33A0 韶韶韶韶韶韶韶韶韶韶韶韶韶韶韶韶
 33B0 陸陸陸陸陸陸陸陸陸陸陸陸陸陸陸陸
 33C0 馳馳馳馳馳馳馳馳馳馳馳馳馳馳馳馳
 33D0 韶韶韶韶韶韶韶韶韶韶韶韶韶韶韶韶
 33E0 西西西西西西西西西西西西西西西西
 33F0 喫喫喫喫喫喫喫喫喫喫喫喫喫喫喫喫

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3540 魏魏魏魏魏魏魏魏魏魏魏魏魏魏魏魏
 3550 牌牌牌牌牌牌牌牌牌牌牌牌牌牌牌牌
 3560 環環環環環環環環環環環環環環環環
 3570 航航航航航航航航航航航航航航航航
 3580
 3590
 35A0 窗窗窗窗窗窗窗窗窗窗窗窗窗窗窗窗
 35B0 彌彌彌彌彌彌彌彌彌彌彌彌彌彌彌彌
 35C0 素素素素素素素素素素素素素素素素
 35D0 苔苔苔苔苔苔苔苔苔苔苔苔苔苔苔苔
 35E0 叔叔叔叔叔叔叔叔叔叔叔叔叔叔叔叔
 35F0 蛤蛤蛤蛤蛤蛤蛤蛤蛤蛤蛤蛤蛤蛤蛤蛤

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3740 媳媳媳媳媳媳媳媳媳媳媳媳媳媳媳媳
 3750 感想愛慈慈慈憤憤憤憤憤憤憤憤憤憤
 3760 藍藍藍藍藍藍藍藍藍藍藍藍藍藍藍藍
 3770 構構構構構構構構構構構構構構構構
 3780
 3790
 37A0 楚楚楚楚楚楚楚楚楚楚楚楚楚楚楚楚
 37B0 柑柑柑柑柑柑柑柑柑柑柑柑柑柑柑柑
 37C0 滅滅滅滅滅滅滅滅滅滅滅滅滅滅滅滅
 37D0 煩煩煩煩煩煩煩煩煩煩煩煩煩煩煩煩
 37E0 獅獅獅獅獅獅獅獅獅獅獅獅獅獅獅獅
 37F0 燒燒燒燒燒燒燒燒燒燒燒燒燒燒燒燒

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3840 晴翠晴翠晴翠晴翠晴翠晴翠晴翠晴翠
3850 確確確確確確確確確確確確確確
3860 節節節節節節節節節節節節節節
3870 署署署署署署署署署署署署署署
3880
3890
38A0 膠膠膠膠膠膠膠膠膠膠膠膠膠膠
38B0 每每每每每每每每每每每每每每
38C0 說說說說說說說說說說說說說說
38D0 關關關關關關關關關關關關關關
38E0 說說說說說說說說說說說說說說
38F0 賊賊賊賊賊賊賊賊賊賊賊賊賊賊

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3A40 壓壓壓壓壓壓壓壓壓壓壓壓壓壓
3A50 摺摺摺摺摺摺摺摺摺摺摺摺摺摺
3A60 稿稿稿稿稿稿稿稿稿稿稿稿稿稿
3A70 歡歡歡歡歡歡歡歡歡歡歡歡歡歡
3A80
3A90
3AA0 滿滿滿滿滿滿滿滿滿滿滿滿滿滿
3AB0 淋淋淋淋淋淋淋淋淋淋淋淋淋淋
3AC0 瑰瑰瑰瑰瑰瑰瑰瑰瑰瑰瑰瑰瑰瑰
3AD0 蝶蝶蝶蝶蝶蝶蝶蝶蝶蝶蝶蝶蝶蝶
3AE0 道道道道道道道道道道道道道道
3AF0 續續續續續續續續續續續續續續

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3C40 刺刺刺刺刺刺刺刺刺刺刺刺刺刺
3C50 嘆嘆嘆嘆嘆嘆嘆嘆嘆嘆嘆嘆嘆嘆
3C60 婢婢婢婢婢婢婢婢婢婢婢婢婢婢
3C70 厥厥厥厥厥厥厥厥厥厥厥厥厥厥
3C80
3C90
3CA0 恩恩恩恩恩恩恩恩恩恩恩恩恩恩
3CB0 幸幸幸幸幸幸幸幸幸幸幸幸幸幸
3CC0 摺摺摺摺摺摺摺摺摺摺摺摺摺摺
3CD0 押押押押押押押押押押押押押押
3CE0 神神神神神神神神神神神神神神
3CF0 朕朕朕朕朕朕朕朕朕朕朕朕朕朕

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3940 辟辟避避避避避避避避避避避避
3950 避避避避避避避避避避避避避避
3960 新新新新新新新新新新新新新新
3970 雷雷雷雷雷雷雷雷雷雷雷雷雷雷
3980
3990
39A0 飽飽飽飽飽飽飽飽飽飽飽飽飽飽
39B0 僭僭僭僭僭僭僭僭僭僭僭僭僭僭
39C0 駭駭駭駭駭駭駭駭駭駭駭駭駭駭
39D0 塵塵塵塵塵塵塵塵塵塵塵塵塵塵
39E0 嫩嫩嫩嫩嫩嫩嫩嫩嫩嫩嫩嫩嫩嫩
39F0 屢屢屢屢屢屢屢屢屢屢屢屢屢屢

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3B40 罰罰罰罰罰罰罰罰罰罰罰罰罰罰
3B50 與與與與與與與與與與與與與與
3B60 冕冕冕冕冕冕冕冕冕冕冕冕冕冕
3B70 裘裘裘裘裘裘裘裘裘裘裘裘裘裘
3B80
3B90
3BA0 說說說說說說說說說說說說說說
3BB0 趕趕趕趕趕趕趕趕趕趕趕趕趕趕
3BC0 銜銜銜銜銜銜銜銜銜銜銜銜銜銜
3BD0 銜銜銜銜銜銜銜銜銜銜銜銜銜銜
3BE0 韶韶韶韶韶韶韶韶韶韶韶韶韶韶
3BF0 烏烏烏烏烏烏烏烏烏烏烏烏烏烏

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3D40 瑞瑞瑞瑞瑞瑞瑞瑞瑞瑞瑞瑞瑞瑞
3D50 與與與與與與與與與與與與與與
3D60 窈窈窈窈窈窈窈窈窈窈窈窈窈窈窈
3D70 滅滅滅滅滅滅滅滅滅滅滅滅滅滅
3D80
3D90
3DA0 展展展展展展展展展展展展展展
3DB0 戕戕戕戕戕戕戕戕戕戕戕戕戕戕
3DC0 蟬蟬蟬蟬蟬蟬蟬蟬蟬蟬蟬蟬蟬蟬
3DD0 請請請請請請請請請請請請請請
3DE0 賞賞賞賞賞賞賞賞賞賞賞賞賞賞
3DF0 踴踴踴踴踴踴踴踴踴踴踴踴踴踴

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3E40 魁逾迤邳迤邳邳邳邳邳邳邳邳邳邳邳邳邳邳
3E50 綽繖考錫紉紉紉紉紉紉紉紉紉紉紉紉紉紉
3E60 箝竈錫錫錫錫錫錫錫錫錫錫錫錫錫錫錫錫
3E70 駛駕駕駕駕駕駕駕駕駕駕駕駕駕駕駕駕駕
3E80
3E90
3EA0 欸赴度黎墨齒齒齒齒齒齒齒齒齒齒齒齒齒
3EB0 欸欸欸欸欸欸欸欸欸欸欸欸欸欸欸欸欸欸
3EC0 欸欸欸欸欸欸欸欸欸欸欸欸欸欸欸欸欸欸
3ED0 愆愆愆愆愆愆愆愆愆愆愆愆愆愆愆愆愆愆
3EE0 愆愆愆愆愆愆愆愆愆愆愆愆愆愆愆愆愆愆
3EF0 愆愆愆愆愆愆愆愆愆愆愆愆愆愆愆愆愆愆

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3040 鉅鉅鉅鉅鉅鉅鉅鉅鉅鉅鉅鉅鉅鉅鉅鉅鉅鉅
3050 鉅鉅鉅鉅鉅鉅鉅鉅鉅鉅鉅鉅鉅鉅鉅鉅鉅鉅
3060 鉅鉅鉅鉅鉅鉅鉅鉅鉅鉅鉅鉅鉅鉅鉅鉅鉅鉅
3070 鉅鉅鉅鉅鉅鉅鉅鉅鉅鉅鉅鉅鉅鉅鉅鉅鉅鉅
3080
3090
30A0 噫噫噫噫噫噫噫噫噫噫噫噫噫噫噫噫噫噫
30B0 噫噫噫噫噫噫噫噫噫噫噫噫噫噫噫噫噫噫
30C0 噫噫噫噫噫噫噫噫噫噫噫噫噫噫噫噫噫噫
30D0 噫噫噫噫噫噫噫噫噫噫噫噫噫噫噫噫噫噫
30E0 噫噫噫噫噫噫噫噫噫噫噫噫噫噫噫噫噫噫
30F0 噫噫噫噫噫噫噫噫噫噫噫噫噫噫噫噫噫噫

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3240 駛駛駛駛駛駛駛駛駛駛駛駛駛駛駛駛駛駛
3250 駛駛駛駛駛駛駛駛駛駛駛駛駛駛駛駛駛駛
3260 駛駛駛駛駛駛駛駛駛駛駛駛駛駛駛駛駛駛
3270 駛駛駛駛駛駛駛駛駛駛駛駛駛駛駛駛駛駛
3280
3290
32A0 逾督督督督督督督督督督督督督督督督督
32B0 逾督督督督督督督督督督督督督督督督督
32C0 逾督督督督督督督督督督督督督督督督督
32D0 逾督督督督督督督督督督督督督督督督督
32E0 逾督督督督督督督督督督督督督督督督督
32F0 逾督督督督督督督督督督督督督督督督督

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3F40 濃澤澤澤澤澤澤澤澤澤澤澤澤澤澤澤澤澤
3F50 燕燕燕燕燕燕燕燕燕燕燕燕燕燕燕燕燕
3F60 瑋瑋瑋瑋瑋瑋瑋瑋瑋瑋瑋瑋瑋瑋瑋瑋瑋瑋
3F70 瑋瑋瑋瑋瑋瑋瑋瑋瑋瑋瑋瑋瑋瑋瑋瑋瑋瑋
3F80
3F90
3FA0 緇禁縛縛縛縛縛縛縛縛縛縛縛縛縛縛縛縛縛
3FB0 緇禁縛縛縛縛縛縛縛縛縛縛縛縛縛縛縛縛縛
3FC0 緇禁縛縛縛縛縛縛縛縛縛縛縛縛縛縛縛縛縛
3FD0 緇禁縛縛縛縛縛縛縛縛縛縛縛縛縛縛縛縛縛
3FE0 緇禁縛縛縛縛縛縛縛縛縛縛縛縛縛縛縛縛縛
3FF0 緇禁縛縛縛縛縛縛縛縛縛縛縛縛縛縛縛縛縛

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3140 脍脍脍脍脍脍脍脍脍脍脍脍脍脍脍脍脍脍
3150 脍脍脍脍脍脍脍脍脍脍脍脍脍脍脍脍脍脍
3160 脍脍脍脍脍脍脍脍脍脍脍脍脍脍脍脍脍脍
3170 脍脍脍脍脍脍脍脍脍脍脍脍脍脍脍脍脍脍
3180
3190
31A0 薄當時爾爾爾爾爾爾爾爾爾爾爾爾爾爾
31B0 薄當時爾爾爾爾爾爾爾爾爾爾爾爾爾爾
31C0 薄當時爾爾爾爾爾爾爾爾爾爾爾爾爾爾
31D0 薄當時爾爾爾爾爾爾爾爾爾爾爾爾爾爾
31E0 薄當時爾爾爾爾爾爾爾爾爾爾爾爾爾爾
31F0 薄當時爾爾爾爾爾爾爾爾爾爾爾爾爾爾

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3340 輶輶輶輶輶輶輶輶輶輶輶輶輶輶輶輶輶輶
3350 輶輶輶輶輶輶輶輶輶輶輶輶輶輶輶輶輶輶
3360 輶輶輶輶輶輶輶輶輶輶輶輶輶輶輶輶輶輶
3370 輶輶輶輶輶輶輶輶輶輶輶輶輶輶輶輶輶輶
3380
3390
33A0 輶輶輶輶輶輶輶輶輶輶輶輶輶輶輶輶輶輶
33B0 輶輶輶輶輶輶輶輶輶輶輶輶輶輶輶輶輶輶
33C0 輶輶輶輶輶輶輶輶輶輶輶輶輶輶輶輶輶輶
33D0 輶輶輶輶輶輶輶輶輶輶輶輶輶輶輶輶輶輶
33E0 輶輶輶輶輶輶輶輶輶輶輶輶輶輶輶輶輶輶
33F0 輶輶輶輶輶輶輶輶輶輶輶輶輶輶輶輶輶輶

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C440 順向順向逆向逆向順向順向逆向逆向順向順向
C450 順向順向逆向逆向順向順向逆向逆向順向順向
C460 順向順向逆向逆向順向順向逆向逆向順向順向
C470 順向順向逆向逆向順向順向逆向逆向順向順向
C480
C490
C4A0 順向順向逆向逆向順向順向逆向逆向順向順向
C4B0 順向順向逆向逆向順向順向逆向逆向順向順向
C4C0 順向順向逆向逆向順向順向逆向逆向順向順向
C4D0 順向順向逆向逆向順向順向逆向逆向順向順向
C4E0 順向順向逆向逆向順向順向逆向逆向順向順向
C4F0 順向順向逆向逆向順向順向逆向逆向順向順向

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C640 順向順向逆向逆向順向順向逆向逆向順向順向
C650 順向順向逆向逆向順向順向逆向逆向順向順向
C660 順向順向逆向逆向順向順向逆向逆向順向順向
C670 順向順向逆向逆向順向順向逆向逆向順向順向
C680
C690
C6A0 ああいうええおおか
C6B0 がきぎくぐげこござじしずせ
C6C0 げそぞただちぢつづてでとどなに
C6D0 むねのははびひびびふぶへべへ
C6E0 ほぼまみむめもややゆよよらりる
C6F0 れろわわゐゑをんアアイイウウエ

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C840
C850
C860
C870
C880
C890
C8A0
C8B0
C8C0
C8D0
C8E0
C8F0

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C540 順向順向逆向逆向順向順向逆向逆向順向順向
C550 順向順向逆向逆向順向順向逆向逆向順向順向
C560 順向順向逆向逆向順向順向逆向逆向順向順向
C570 順向順向逆向逆向順向順向逆向逆向順向順向
C580
C590
C5A0 順向順向逆向逆向順向順向逆向逆向順向順向
C5B0 順向順向逆向逆向順向順向逆向逆向順向順向
C5C0 順向順向逆向逆向順向順向逆向逆向順向順向
C5D0 順向順向逆向逆向順向順向逆向逆向順向順向
C5E0 順向順向逆向逆向順向順向逆向逆向順向順向
C5F0 順向順向逆向逆向順向順向逆向逆向順向順向

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C740 エオオカガキグクケグコゴソザシ
C750 ジスズセゼソゾタダチナツヅテデ
C760 トドナニヌノハバヒビビフブ
C770 ヘベベホボボマミムメメヤユユ
C780
C790
C7A0 ヨヨラリルレロワヅヅエツンヅカ
C7B0 ケデエジズニイJKLMUフXЦ
C7C0 ШЩЪЫЬЭЮЯабгдеей
C7D0 зийклянопрстуфхц
C7E0 чщъыьэя①②③④⑤⑥⑦
C7F0 ⑧⑨⑩(1)(2)(3)(4)(5)(6)(7)(8)(9)(10)

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C940 又ヒムロ厂万开毛子口儿中イ巧有与
C950 札示仇机机无为印公此局夫中市先受
C960 世气尸界界仁任仕乞全金判画册订圣
C970 死旁守允余匠旁命町止仄仄切伐机气
C980
C990
C9A0 永汎汎力夫孰王内臆防仗忧沢件沉
C9B0 伶松价俗俗神仲佯佯悻悻悻河泥吃脚
C9C0 嘉厥医王厚呼因向己己牙与命效使工妓
C9D0 如吁慈仔杂炮响响响响响荒开庄异俗约
C9E0 快齿科科科机世手挖技技技托晃春打
C9F0 机机机机束机机机机机机机机机机机

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CA40 洲炊炊炊炊炊斗角角角角角网网网网网万万万万

CA50 西西西西西西西西西西西西西西西西西西西西西西

CA60 任任任任任任任任任任任任任任任任任任任任任任

CA70 炊炊炊炊炊炊炊炊炊炊炊炊炊炊炊炊炊炊炊炊炊炊

CA80

CA90

CAA0 叫叫叫叫叫叫叫叫叫叫叫叫叫叫叫叫叫叫叫叫叫叫

CAB0 莘莘莘莘莘莘莘莘莘莘莘莘莘莘莘莘莘莘莘莘莘莘莘

CAC0 册册册册册册册册册册册册册册册册册册册册册册册

CAD0 序序序序序序序序序序序序序序序序序序序序序序序

CAE0 伙伙伙伙伙伙伙伙伙伙伙伙伙伙伙伙伙伙伙伙伙伙

CAF0 抗抗抗抗抗抗抗抗抗抗抗抗抗抗抗抗抗抗抗抗抗抗抗

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CC40 伦伦伦伦伦伦伦伦伦伦伦伦伦伦伦伦伦伦伦伦伦伦

CC50 姊姊姊姊姊姊姊姊姊姊姊姊姊姊姊姊姊姊姊姊姊姊

CC60 姐姐姐姐姐姐姐姐姐姐姐姐姐姐姐姐姐姐姐姐姐姐

CC70 强强强强强强强强强强强强强强强强强强强强

CC80

CC90

CCA0 抱抱抱抱抱抱抱抱抱抱抱抱抱抱抱抱抱抱抱抱抱

CCB0 传传传传传传传传传传传传传传传传传传传传传传

CCD0 盼盼盼盼盼盼盼盼盼盼盼盼盼盼盼盼盼盼盼盼盼

CCE0 坛坛坛坛坛坛坛坛坛坛坛坛坛坛坛坛坛坛坛坛坛坛

CCF0 液液液液液液液液液液液液液液液液液液液液液液

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CE40 啊啊啊啊啊啊啊啊啊啊啊啊啊啊啊啊啊啊啊啊啊

CE50 埃埃埃埃埃埃埃埃埃埃埃埃埃埃埃埃埃埃埃埃埃埃

CE60 复复复复复复复复复复复复复复复复复复复复复复

CE70 婢婢婢婢婢婢婢婢婢婢婢婢婢婢婢婢婢婢婢婢婢

CE80

CE90

CEA0 寇寇寇寇寇寇寇寇寇寇寇寇寇寇寇寇寇寇寇寇寇寇

CEB0 僻僻僻僻僻僻僻僻僻僻僻僻僻僻僻僻僻僻僻僻僻僻

CEC0 患患患患患患患患患患患患患患患患患患患患患患

CED0 偷偷偷偷偷偷偷偷偷偷偷偷偷偷偷偷偷偷偷偷偷偷

CEE0 振振振振振振振振振振振振振振振振振振振振振振

CEF0 界界界界界界界界界界界界界界界界界界界界界界

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CF40 柜柜柜柜柜柜柜柜柜柜柜柜柜柜柜柜柜柜柜柜柜柜

CF50 秩秩秩秩秩秩秩秩秩秩秩秩秩秩秩秩秩秩秩秩秩秩

CF60 终终终终终终终终终终终终终终终终终终终终终

CF70 决决决决决决决决决决决决决决决决决决决决决决

CF80

CF90

CFA0 洁洁洁洁洁洁洁洁洁洁洁洁洁洁洁洁洁洁洁洁洁洁

CFB0 焜焜焜焜焜焜焜焜焜焜焜焜焜焜焜焜焜焜焜焜焜焜焜焜

CFC0 秩秩秩秩秩秩秩秩秩秩秩秩秩秩秩秩秩秩秩秩秩秩

CFD0 珺珺珺珺珺珺珺珺珺珺珺珺珺珺珺珺珺珺珺珺珺珺珺

CFE0 眩眩眩眩眩眩眩眩眩眩眩眩眩眩眩眩眩眩眩眩眩

CFF0 砣砣砣砣砣砣砣砣砣砣砣砣砣砣砣砣砣砣砣砣

0123456789ABCDEF

CB40 杖杖杖杖杖杖杖杖杖杖杖杖杖杖杖杖杖杖杖杖杖杖

CB50 泖泖泖泖泖泖泖泖泖泖泖泖泖泖泖泖泖泖泖泖泖泖泖

CB60 物物物物物物物物物物物物物物物物物物物物物物

CB70 迄迄迄迄迄迄迄迄迄迄迄迄迄迄迄迄迄迄迄迄迄

CB80

CB90

CBA0 芊芊芊芊芊芊芊芊芊芊芊芊芊芊芊芊芊芊芊芊芊芊

CBB0 阮阮阮阮阮阮阮阮阮阮阮阮阮阮阮阮阮阮阮阮阮

CBC0 恂恂恂恂恂恂恂恂恂恂恂恂恂恂恂恂恂恂恂恂恂

CBD0 朋朋朋朋朋朋朋朋朋朋朋朋朋朋朋朋朋朋朋朋朋

CBE0 哪哪哪哪哪哪哪哪哪哪哪哪哪哪哪哪哪哪哪哪哪

CBF0 困困困困困困困困困困困困困困困困困困困困困

0123456789ABCDEF

CD40 泖泖泖泖泖泖泖泖泖泖泖泖泖泖泖泖泖泖泖泖泖泖

CD50 焜焜焜焜焜焜焜焜焜焜焜焜焜焜焜焜焜焜焜焜焜焜

CD60 犊犊犊犊犊犊犊犊犊犊犊犊犊犊犊犊犊犊犊犊犊犊

CD70 耽耽耽耽耽耽耽耽耽耽耽耽耽耽耽耽耽耽耽耽耽

CD80

CD90

CDA0 石石石石石石石石石石石石石石石石石石石石石

CDB0 膈膈膈膈膈膈膈膈膈膈膈膈膈膈膈膈膈膈膈膈膈

CDC0 葵葵葵葵葵葵葵葵葵葵葵葵葵葵葵葵葵葵葵葵葵

CDD0 达达达达达达达达达达达达达达达达达达达达达

CDE0 振振振振振振振振振振振振振振振振振振振振振

CDF0 翌翌翌翌翌翌翌翌翌翌翌翌翌翌翌翌翌翌翌翌翌

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0040 突竄芒竿松粗枝利枝料劍紡絞累姜辜
 0050 扭高奕前并子合肢脚肢肢肢脚肢脚肢脚
 0060 肚胸胸肌脚脚映脚西肛蒜笠慈辜发危
 0070 第管笈苦亩亩茵茵苻尖石村茶耘芮
 0080
 0090
 00A0 茎莛莩琴菱藕芋吐吃灼益衍衍沁被咽

00B0 旭告越遣逮走送送那那脚脚脚脚脚脚脚
 00C0 钹钹钹钹钹钹钹钹钹钹钹钹钹钹钹钹
 00D0 掩伸捺捺捺捺捺捺捺捺捺捺捺捺捺捺
 00E0 莩清波阔净涂刻刻刻刻刻刻刻刻刻刻
 00F0 炒炒炒炒炒炒炒炒炒炒炒炒炒炒炒炒

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0240 铁翠匪匪匪匪匪匪匪匪匪匪匪匪匪匪
 0250 速漆漆俱俱俱俱俱俱俱俱俱俱俱俱俱俱
 0260 浣浣浣浣浣浣浣浣浣浣浣浣浣浣浣浣
 0270 炫炫炫炫炫炫炫炫炫炫炫炫炫炫炫炫
 0280
 0290

02A0 轮拳抄信捷指指指徐徐徐徐徐徐徐徐
 02B0 琳琳琳琳琳琳琳琳琳琳琳琳琳琳琳琳
 02C0 姓珍斐庄店店店店店店店店店店店店
 02D0 眼脚脚脚脚脚脚脚脚脚脚脚脚脚脚脚脚
 02E0 砗砗砗砗砗砗砗砗砗砗砗砗砗砗砗砗
 02F0 栢栢栢栢栢栢栢栢栢栢栢栢栢栢栢栢

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0440 耐耐耐耐耐耐耐耐耐耐耐耐耐耐耐耐
 0450 便便便便便便便便便便便便便便便便
 0460 信信信信信信信信信信信信信信信信
 0470 屈屈屈屈屈屈屈屈屈屈屈屈屈屈屈屈
 0480
 0490

04A0 吨吨吨吨吨吨吨吨吨吨吨吨吨吨吨吨
 04B0 幼幼幼幼幼幼幼幼幼幼幼幼幼幼幼幼
 04C0 堍堍堍堍堍堍堍堍堍堍堍堍堍堍堍堍
 04D0 婕婕婕婕婕婕婕婕婕婕婕婕婕婕婕婕
 04E0 培培培培培培培培培培培培培培培培
 04F0 综综综综综综综综综综综综综综综综

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0140 映卓吟吟吟吟吟吟吟吟吟吟吟吟吟吟
 0150 歪歪歪歪歪歪歪歪歪歪歪歪歪歪歪歪
 0160 斌斌斌斌斌斌斌斌斌斌斌斌斌斌斌斌
 0170 辜辜辜辜辜辜辜辜辜辜辜辜辜辜辜辜
 0180
 0190

01A0 恙愆愆愆愆愆愆愆愆愆愆愆愆愆愆愆愆
 01B0 晨晨晨晨晨晨晨晨晨晨晨晨晨晨晨晨
 01C0 悔悔悔悔悔悔悔悔悔悔悔悔悔悔悔悔
 01D0 讲讲讲讲讲讲讲讲讲讲讲讲讲讲讲讲
 01E0 卸卸卸卸卸卸卸卸卸卸卸卸卸卸卸卸
 01F0 栢栢栢栢栢栢栢栢栢栢栢栢栢栢栢栢

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0340 笋笋笋笋笋笋笋笋笋笋笋笋笋笋笋笋
 0350 统统统统统统统统统统统统统统统统
 0360 朕朕朕朕朕朕朕朕朕朕朕朕朕朕朕朕
 0370 昇昇昇昇昇昇昇昇昇昇昇昇昇昇昇昇
 0380
 0390

03A0 零零零零零零零零零零零零零零零零
 03B0 安安安安安安安安安安安安安安安安
 03C0 缺缺缺缺缺缺缺缺缺缺缺缺缺缺缺缺
 03D0 副副副副副副副副副副副副副副副副
 03E0 豺豺豺豺豺豺豺豺豺豺豺豺豺豺豺豺
 03F0 迢迢迢迢迢迢迢迢迢迢迢迢迢迢迢迢迢

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0540 嵬嵬嵬嵬嵬嵬嵬嵬嵬嵬嵬嵬嵬嵬嵬嵬
 0550 徇徇徇徇徇徇徇徇徇徇徇徇徇徇徇徇
 0560 悒悒悒悒悒悒悒悒悒悒悒悒悒悒悒悒
 0570 眼眼眼眼眼眼眼眼眼眼眼眼眼眼眼眼
 0580
 0590

05A0 捷捷捷捷捷捷捷捷捷捷捷捷捷捷捷捷
 05B0 根根根根根根根根根根根根根根根根
 05C0 栢栢栢栢栢栢栢栢栢栢栢栢栢栢栢栢
 05D0 栢栢栢栢栢栢栢栢栢栢栢栢栢栢栢栢
 05E0 浣浣浣浣浣浣浣浣浣浣浣浣浣浣浣浣
 05F0 浣浣浣浣浣浣浣浣浣浣浣浣浣浣浣浣

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D640 涪流汚泥潮湖泥涂娘梯院脚款数学君
D650 埔岩漆测汝含溶塔堤裝院然精城译借
D660 痒狗疲振集兜兜堤掘益玆琳和吾里琦旋
D670 斑球夸诺琪堤李希祺享時高彭章街
D680
D690

D6A0 痘痂多痂前融詰时賦时明卑印印名脈
D6B0 管羊多岳西津很脆咯岩砗嗣湖洪殊施
D6C0 液洽紫离托粘染橙穿交塞箔碎苛苛雍
D6D0 篋管茄苦笄箇笄第零笄笄箇笄和粘
D6E0 林和行笄笄笄笄笄笄笄笄笄笄笄笄
D6F0 紉罪笨芳蕨笨踴拉撤肤胸袋琴材框

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D840 鈞釘針林模司閩鄂鄧鄧鄧鄧維甲貞
D850 恒溶雁催催僂僂僂僂僂僂僂僂僂僂僂
D860 絨洽冥喇科貢肚兜兜兜兜兜兜兜兜兜
D870 喘咽咽喘咽喘咽喘咽喘咽喘咽喘咽喘
D880
D890

D8A0 理畢奥冯竭垣整空来孺眉威耐智匪
D8B0 珉珉珉珉界竭婚燄髮婚髮婚髮婚髮婚
D8C0 娟娟娟娟娟娟娟娟娟娟娟娟娟娟娟
D8D0 瓷瓷瓷瓷瓷瓷瓷瓷瓷瓷瓷瓷瓷瓷瓷
D8E0 矜矜矜矜矜矜矜矜矜矜矜矜矜矜矜
D8F0 样威旋頗疑假提俸惹巨惹惹惹惹惹

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DA40 漠楚既直濃淡香液清風淅溢榮滂流施
DA50 潜淫裡滋量苗淡温容穿草庭做焱聚梳
DA60 控版措措措措措措措措措措措措措
DA70 獭猴猴猴猴猴猴猴猴猴猴猴猴猴猴
DA80
DA90

DAA0 晤琪琪琪琪琪琪琪琪琪琪琪琪琪琪
DAB0 痔瘡瘡瘡瘡瘡瘡瘡瘡瘡瘡瘡瘡瘡瘡
DAC0 睛睛睛睛睛睛睛睛睛睛睛睛睛睛睛
DAD0 皓皓皓皓皓皓皓皓皓皓皓皓皓皓皓
DAE0 宛管笠茹笠箭莞菜栲栲栲栲栲栲栲栲
DAF0 銅銅銅銅銅銅銅銅銅銅銅銅銅銅銅

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D740 初峰鍾正肺肺肺肺肺肺肺肺肺肺肺肺
D750 腔腔腔腔腔腔腔腔腔腔腔腔腔腔腔
D760 秩秩秩秩秩秩秩秩秩秩秩秩秩秩秩
D770 植植植植植植植植植植植植植植植
D780
D790

D7A0 妓妓妓妓妓妓妓妓妓妓妓妓妓妓妓
D7B0 妓妓妓妓妓妓妓妓妓妓妓妓妓妓妓
D7C0 表表表表表表表表表表表表表表表
D7D0 犯犯的的的的的的的的的的的的的的
D7E0 軀軀軀軀軀軀軀軀軀軀軀軀軀軀軀軀
D7F0 郝郝郝郝郝郝郝郝郝郝郝郝郝郝郝

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D940 弹届匪痒俱楊學扇瘦想恒恪箇匪屈棍
D950 悞悞悞悞悞悞悞悞悞悞悞悞悞悞悞
D960 排排排排排排排排排排排排排排排
D970 插插插插插插插插插插插插插插插
D980
D990

D9A0 腕吟咽咽咽咽咽咽咽咽咽咽咽咽咽
D9B0 核核核核核核核核核核核核核核核
D9C0 相相相相相相相相相相相相相相相
D9D0 婚婚婚婚婚婚婚婚婚婚婚婚婚婚婚
D9E0 溜溜溜溜溜溜溜溜溜溜溜溜溜溜溜
D9F0

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DB40 翠翠翠翠翠翠翠翠翠翠翠翠翠翠翠
DB50 脰脰脰脰脰脰脰脰脰脰脰脰脰脰脰
DB60 莛莛莛莛莛莛莛莛莛莛莛莛莛莛莛莛
DB70 枝枝枝枝枝枝枝枝枝枝枝枝枝枝枝
DB80
DB90

DBA0 嵩嵩嵩嵩嵩嵩嵩嵩嵩嵩嵩嵩嵩嵩嵩
DBB0 峒峒峒峒峒峒峒峒峒峒峒峒峒峒峒峒
DBC0 岫岫岫岫岫岫岫岫岫岫岫岫岫岫岫岫
DBD0 岫岫岫岫岫岫岫岫岫岫岫岫岫岫岫岫
DBE0 岫岫岫岫岫岫岫岫岫岫岫岫岫岫岫岫
DBF0 岫岫岫岫岫岫岫岫岫岫岫岫岫岫岫岫

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E240 檟揆殺格揆揆博格復個個被揭時揭揭
 E250 檟揆拿概擊概蕙概揆概概概概概概概
 E260 相檟概概概概概概概概概概概概概
 E270 淫許概概概概概概概概概概概概概
 E280
 E290
 E2A0 德是博流萃澤滿灌漑滴漉從涖瀆瀟
 E2B0 激濤楚楚濤章濤混濤易濤濤濤濤濤濤
 E2C0 蕙蕙蕙蕙蕙蕙蕙蕙蕙蕙蕙蕙蕙蕙蕙蕙
 E2D0 瓊瓊瓊瓊瓊瓊瓊瓊瓊瓊瓊瓊瓊瓊瓊瓊
 E2E0 瑤瑤瑤瑤瑤瑤瑤瑤瑤瑤瑤瑤瑤瑤瑤瑤
 E2F0 研礪礪礪礪礪礪礪礪礪礪礪礪礪礪礪

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E440 微微微微微微微微微微微微微微微微
 E450 洽洽洽洽洽洽洽洽洽洽洽洽洽洽洽洽
 E460 翟翟翟翟翟翟翟翟翟翟翟翟翟翟翟翟
 E470 軋軋軋軋軋軋軋軋軋軋軋軋軋軋軋
 E480
 E490
 E4A0 錙錙錙錙錙錙錙錙錙錙錙錙錙錙錙錙
 E4B0 錙錙錙錙錙錙錙錙錙錙錙錙錙錙錙錙
 E4C0 錙錙錙錙錙錙錙錙錙錙錙錙錙錙錙錙
 E4D0 錙錙錙錙錙錙錙錙錙錙錙錙錙錙錙錙
 E4E0 錙錙錙錙錙錙錙錙錙錙錙錙錙錙錙錙
 E4F0 德德德德德德德德德德德德德德德德

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E640 澗澗澗澗澗澗澗澗澗澗澗澗澗澗澗澗
 E650 澗澗澗澗澗澗澗澗澗澗澗澗澗澗澗澗
 E660 澗澗澗澗澗澗澗澗澗澗澗澗澗澗澗澗
 E670 澗澗澗澗澗澗澗澗澗澗澗澗澗澗澗澗
 E680
 E690
 E6A0 穉穉穉穉穉穉穉穉穉穉穉穉穉穉穉穉
 E6B0 穉穉穉穉穉穉穉穉穉穉穉穉穉穉穉穉
 E6C0 穉穉穉穉穉穉穉穉穉穉穉穉穉穉穉穉
 E6D0 穉穉穉穉穉穉穉穉穉穉穉穉穉穉穉穉
 E6E0 穉穉穉穉穉穉穉穉穉穉穉穉穉穉穉穉
 E6F0 穉穉穉穉穉穉穉穉穉穉穉穉穉穉穉穉

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E340 襪襪襪襪襪襪襪襪襪襪襪襪襪襪襪襪
 E350 襪襪襪襪襪襪襪襪襪襪襪襪襪襪襪襪
 E360 襪襪襪襪襪襪襪襪襪襪襪襪襪襪襪襪
 E370 襪襪襪襪襪襪襪襪襪襪襪襪襪襪襪襪
 E380
 E390
 E3A0 結結結結結結結結結結結結結結結結
 E3B0 結結結結結結結結結結結結結結結結
 E3C0 結結結結結結結結結結結結結結結結
 E3D0 結結結結結結結結結結結結結結結結
 E3E0 結結結結結結結結結結結結結結結結
 E3F0 結結結結結結結結結結結結結結結結

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E540 噤噤噤噤噤噤噤噤噤噤噤噤噤噤噤噤
 E550 噤噤噤噤噤噤噤噤噤噤噤噤噤噤噤噤
 E560 噤噤噤噤噤噤噤噤噤噤噤噤噤噤噤噤
 E570 噤噤噤噤噤噤噤噤噤噤噤噤噤噤噤噤
 E580
 E590
 E5A0 噤噤噤噤噤噤噤噤噤噤噤噤噤噤噤噤
 E5B0 噤噤噤噤噤噤噤噤噤噤噤噤噤噤噤噤
 E5C0 噤噤噤噤噤噤噤噤噤噤噤噤噤噤噤噤
 E5D0 噤噤噤噤噤噤噤噤噤噤噤噤噤噤噤噤
 E5E0 噤噤噤噤噤噤噤噤噤噤噤噤噤噤噤噤
 E5F0 噤噤噤噤噤噤噤噤噤噤噤噤噤噤噤噤

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E740 膊膊膊膊膊膊膊膊膊膊膊膊膊膊膊膊
 E750 膊膊膊膊膊膊膊膊膊膊膊膊膊膊膊膊
 E760 膊膊膊膊膊膊膊膊膊膊膊膊膊膊膊膊
 E770 膊膊膊膊膊膊膊膊膊膊膊膊膊膊膊膊
 E780
 E790
 E7A0 嶷嶷嶷嶷嶷嶷嶷嶷嶷嶷嶷嶷嶷嶷嶷嶷
 E7B0 嶷嶷嶷嶷嶷嶷嶷嶷嶷嶷嶷嶷嶷嶷嶷嶷
 E7C0 嶷嶷嶷嶷嶷嶷嶷嶷嶷嶷嶷嶷嶷嶷嶷嶷
 E7D0 嶷嶷嶷嶷嶷嶷嶷嶷嶷嶷嶷嶷嶷嶷嶷嶷
 E7E0 嶷嶷嶷嶷嶷嶷嶷嶷嶷嶷嶷嶷嶷嶷嶷嶷
 E7F0 嶷嶷嶷嶷嶷嶷嶷嶷嶷嶷嶷嶷嶷嶷嶷嶷

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F440 0 1 2 3 4 5 6 7 8 9 A B C D E F
F450 0 1 2 3 4 5 6 7 8 9 A B C D E F
F460 0 1 2 3 4 5 6 7 8 9 A B C D E F
F470 0 1 2 3 4 5 6 7 8 9 A B C D E F
F480 0 1 2 3 4 5 6 7 8 9 A B C D E F
F490 0 1 2 3 4 5 6 7 8 9 A B C D E F
F4A0 0 1 2 3 4 5 6 7 8 9 A B C D E F
F4B0 0 1 2 3 4 5 6 7 8 9 A B C D E F
F4C0 0 1 2 3 4 5 6 7 8 9 A B C D E F
F4D0 0 1 2 3 4 5 6 7 8 9 A B C D E F
F4E0 0 1 2 3 4 5 6 7 8 9 A B C D E F
F4F0 0 1 2 3 4 5 6 7 8 9 A B C D E F

0123456789ABCDEF

F640 0 1 2 3 4 5 6 7 8 9 A B C D E F
F650 0 1 2 3 4 5 6 7 8 9 A B C D E F
F660 0 1 2 3 4 5 6 7 8 9 A B C D E F
F670 0 1 2 3 4 5 6 7 8 9 A B C D E F
F680 0 1 2 3 4 5 6 7 8 9 A B C D E F
F690 0 1 2 3 4 5 6 7 8 9 A B C D E F
F6A0 0 1 2 3 4 5 6 7 8 9 A B C D E F
F6B0 0 1 2 3 4 5 6 7 8 9 A B C D E F
F6C0 0 1 2 3 4 5 6 7 8 9 A B C D E F
F6D0 0 1 2 3 4 5 6 7 8 9 A B C D E F
F6E0 0 1 2 3 4 5 6 7 8 9 A B C D E F
F6F0 0 1 2 3 4 5 6 7 8 9 A B C D E F

0123456789ABCDEF

F840 0 1 2 3 4 5 6 7 8 9 A B C D E F
F850 0 1 2 3 4 5 6 7 8 9 A B C D E F
F860 0 1 2 3 4 5 6 7 8 9 A B C D E F
F870 0 1 2 3 4 5 6 7 8 9 A B C D E F
F880 0 1 2 3 4 5 6 7 8 9 A B C D E F
F890 0 1 2 3 4 5 6 7 8 9 A B C D E F
F8A0 0 1 2 3 4 5 6 7 8 9 A B C D E F
F8B0 0 1 2 3 4 5 6 7 8 9 A B C D E F
F8C0 0 1 2 3 4 5 6 7 8 9 A B C D E F
F8D0 0 1 2 3 4 5 6 7 8 9 A B C D E F
F8E0 0 1 2 3 4 5 6 7 8 9 A B C D E F
F8F0 0 1 2 3 4 5 6 7 8 9 A B C D E F

0123456789ABCDEF

F540 0 1 2 3 4 5 6 7 8 9 A B C D E F
F550 0 1 2 3 4 5 6 7 8 9 A B C D E F
F560 0 1 2 3 4 5 6 7 8 9 A B C D E F
F570 0 1 2 3 4 5 6 7 8 9 A B C D E F
F580 0 1 2 3 4 5 6 7 8 9 A B C D E F
F590 0 1 2 3 4 5 6 7 8 9 A B C D E F
F5A0 0 1 2 3 4 5 6 7 8 9 A B C D E F
F5B0 0 1 2 3 4 5 6 7 8 9 A B C D E F
F5C0 0 1 2 3 4 5 6 7 8 9 A B C D E F
F5D0 0 1 2 3 4 5 6 7 8 9 A B C D E F
F5E0 0 1 2 3 4 5 6 7 8 9 A B C D E F
F5F0 0 1 2 3 4 5 6 7 8 9 A B C D E F

0123456789ABCDEF

F740 0 1 2 3 4 5 6 7 8 9 A B C D E F
F750 0 1 2 3 4 5 6 7 8 9 A B C D E F
F760 0 1 2 3 4 5 6 7 8 9 A B C D E F
F770 0 1 2 3 4 5 6 7 8 9 A B C D E F
F780 0 1 2 3 4 5 6 7 8 9 A B C D E F
F790 0 1 2 3 4 5 6 7 8 9 A B C D E F
F7A0 0 1 2 3 4 5 6 7 8 9 A B C D E F
F7B0 0 1 2 3 4 5 6 7 8 9 A B C D E F
F7C0 0 1 2 3 4 5 6 7 8 9 A B C D E F
F7D0 0 1 2 3 4 5 6 7 8 9 A B C D E F
F7E0 0 1 2 3 4 5 6 7 8 9 A B C D E F
F7F0 0 1 2 3 4 5 6 7 8 9 A B C D E F

0123456789ABCDEF

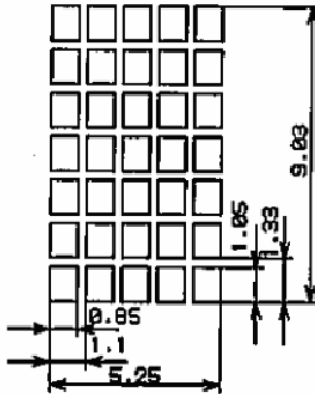
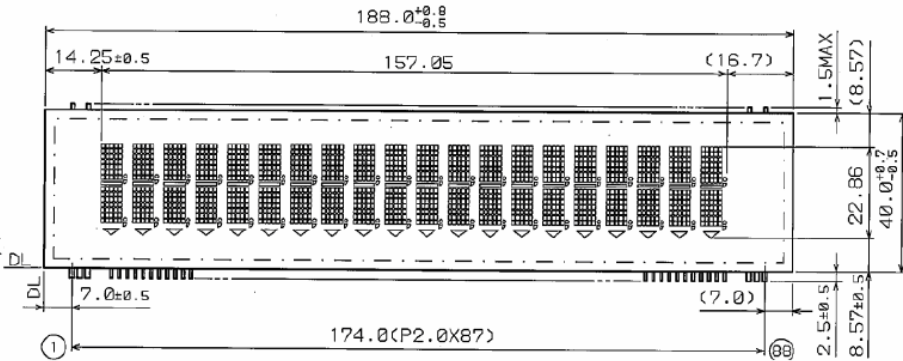
F940 0 1 2 3 4 5 6 7 8 9 A B C D E F
F950 0 1 2 3 4 5 6 7 8 9 A B C D E F
F960 0 1 2 3 4 5 6 7 8 9 A B C D E F
F970 0 1 2 3 4 5 6 7 8 9 A B C D E F
F980 0 1 2 3 4 5 6 7 8 9 A B C D E F
F990 0 1 2 3 4 5 6 7 8 9 A B C D E F
F9A0 0 1 2 3 4 5 6 7 8 9 A B C D E F
F9B0 0 1 2 3 4 5 6 7 8 9 A B C D E F
9C0 0 1 2 3 4 5 6 7 8 9 A B C D E F
F9D0 0 1 2 3 4 5 6 7 8 9 A B C D E F
F9E0 0 1 2 3 4 5 6 7 8 9 A B C D E F
F9F0 0 1 2 3 4 5 6 7 8 9 A B C D E F

3-3-2. VFD Board

3-3-2-1. Customer Display Specification

1. Panel Specification

Item	Spec criteria Description
Display Method	Vacuum Fluorescent Display
Display Pattern	5x7 Dot Matrix
Character Size	5.25 mm(W) x 9.03 mm(H)
Dot Size (X*Y)	0.85 mm(X) x 1.05 mm(Y)
Character Number	40 (20 columns x 2 lines)



3-3-2-2. Commands

1. LD220 / P4000

Command	Sub-Item (Hex)	Description
HT	09	Move cursor right (Only valid in overwrite mode)
BS	08	Move cursor left (Only valid in overwrite mode)
CR	0D	Move cursor to left-most position (Only valid in overwrite mode)
ESC @	1B 40	Initialize customer display to initial state, clears display buffer, set display mode to shift and sets current display row to upper row
ESC U	1B 55	Select upper row as current row (Initial default)
ESC D	1B 44	Select lower row as current row
ESC A n	1B 41 n	Sets customer display disable or enable n=D, Disable ; n=E, Enable
ESC C r c	1B 43 r c	Move cursor to specified position (Only valid in overwrite mode) r = U, upper row ; r = D, lower row 1 c 20 (column number)
ESC R n	1B 52 n	Set international font sets (Please refer International Font Set Table)
ESC % n	1B 25 n	Set font pattern N=0, selected; n=1, canceled
ESC & n s [p]	1B 26 n s data	Define user font pattern N=code for first character S=code for last character Data= 5 bytes required for each character

International Font Set Table

n(Hex)	Font Set
30h	U.S.A.
31h	GERMANY
32h	FRANCE
33h	JAPAN

2. EPSON POS D101 (Default)

Command	Sub-Item (Hex)	Description
HT	09	Move cursor right
BS	08	Move cursor left
US LF	1F 0A	Move cursor up
LF	0A	Move cursor down
US CR	1F 0D	Move cursor to right-most position
CR	0D	Move cursor to left-most position
HOM	0B	Move cursor to home position
US B	1F 42	Move cursor to bottom position
US \$ x y	1F 24 x y	Move cursor to specified position 1 x(column) 20 ; 1 y(row) 2
US C n	1F 43 n	Select/cancel cursor display n=0, canceled ; n=1, selected
CLR	0C	Clear display screen
CAN	18	Clear cursor line
US X n	1F 58 n	Brightness adjustment, 1 n 4
US E n	1F 45 n	Blink display screen 0 n 255 (n*50msec) ON / (n*50msec) OFF n=0, blinking is canceled n=255, display is turned off
ESC @	1B 40	Initialize display
ESC t n	1B 74 n	Select character code table 0 n 5 (Please refer Chapter 5)
ESC R n	1B 52 n	Select international character set (Please refer International Font Set Table)
US r n	1F 72 n	Select/cancel reverse character n=0, canceled ; n=1, selected
US MD1	1F 01	Specify overwrite mode
US MD2	1F 02	Specify vertical scroll mode
US MD3	1F 03	Specify horizontal scroll mode
US . n	1F 2E n	Specify period display n=display character code
US , n	1F 2C n	Specify comma display n= display character code
US ; n	1F 3B n	Specify semicolon (period+comma) display n= display character code
US # n m	1F 23 n m	Specify display annunciator, turn the annunciator at "m" column on or off n=0,1 (Off, On) ; 0 m 20
ESC & s n m [a(pl..p7) (m-n+1)	1B 26 s n m[a(p1..p5)](m- n+1)	Define download characters, S=1; 32 n m 126 ; a=5 (p1..p5 = pattern1..pattern5)
ESC ? n	1B 3F n	Cancel user-defined characters, 32 n 126 (n=character code)
ESC % n	1B 25 n	Select/cancel download character set n=0, canceled ; n=1, selected
ESC W n s (x1 y1 x2 y2)	1B 57 n s (x1 y1 x2 y2)	Specify/cancel the window range n=1,2,3,4 (four windows) ; s=0,1 (disable, enable) 1 x1 x2 20 (column) ; 1 y1 y2 2 (row)
US @	1F 40	Execute self-test
US T h m	1F 54 h m	Display time : 0 h 23 ; 0 m 59
US U	1F 55	Display of time counter

***International Font Set Table**

n(Hex)	Font Set
00h	U.S.A.
01h	FRANCE
02h	GERMANY
03h	U.K.
04h	DENMARK I
05h	SWEDEN
06h	ITALY
07h	SPAIN
08h	JAPAN
09h	NORWAY
0Ah	DENMARK II
	SLAVONIC/RUSSIA

3. AEDEX

Command	Sub-Item (Hex)	Description
!# 1..CR	21 23 31 [data x 20] 0D	Upper line display
!# 2..CR	21 23 32 [data x 20] 0D	Bottom line display
!# 4..CR	21 23 34 [data x 45] 0D	Upper line message scroll continuously
!# 5..CR	21 23 35 hh ':' mm 0D	Set and display 24 hour time 0 h, m 9
!# 5 CR	21 23 35 0D	Display 24 hour time
!# 6..CR	21 23 36 [data x 45] 0D	Upper line message scroll once pass
!# 9..CR	21 23 39 [data x 40] 0D	Two line display

4. UTC/S

Command	Sub-Item (Hex)	Description
BS	08	Back space
HT	09	Horizontal tab
LF	0A	Line feed
CR	0D	Carriage return
DC0 p	10 p	Move cursor to specified position, 0 p 39 (Please refer Row Character Position Chart)
DC1	11	Over write display mode
DC2	12	Vertical scroll mode
DC3	13	Cursor on
DC4	14	Cursor off
ESC d	1B 64	Change to UTC enhanced mode
US	1F	Clear display

Row Character Position Chart (Decimal)

Row1	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
Row2	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39

Row Character Position Chart (Hex)

Row1	00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F	10	11	12	13
Row2	14	15	16	17	18	19	1A	1B	1C	1D	1E	1F	20	21	22	23	24	25	26	27

5. UTC/E

Command	Sub-Item (Hex)	Description
ESC u A..CR	1B 75 41 [data x 20] 0D	Upper line display
ESC u B..CR	1B 75 42 [data x 20] 0D	Bottom line display
ESC u D..CR	1B 75 44 [data x 20] 0D	Upper line message scroll continuously
ESC u E..CR	1B 75 45 hh mm 0D	Set and display 24 hour time 0 h , m 9
ESC u F..CR	1B 75 46 [data x 20] 0D	Upper line message scroll once pass
ESC u 1..CR	1B 75 49 [data x 40] 0D	Two line display
ESC RS..CR	1B 0F 0D	Change to UTC standard mode

6. ADM788

Command	Sub-Item (Hex)	Description
CLR	0C	Clear display
CR	0D	Carriage return
SLE1	0E	Clear up line and move cursor to upper line left most end
SLE2	0F	Clear low line and move cursor to lower line left most end

7. DSP800

Command	Sub-Item (Hex)	Description
EOT SOH I n ETB	04 01 49 n 17	Select international character set (Please refer International Font Set Table)
EOT SOH P n ETB	04 01 50 n 17	Move cursor to specified position 49 n 48
EOT SOH C n m ETB	04 01 43 n m 17	Clear display range from n position to m position and move cursor to n position 49 n m 88
EOT SOH S n ETB	04 01 53 n 17	Save the current displaying data (40 characters) to n'th layer for demo display 1 n 3 (n specify the layer 1, 2, or 3)
EOT SOH D n m ETB	04 01 44 n m 17	Display the saved data 1 n 3 (n specify the layer 1, 2, or 3) "m" can be ignored
EOT SOH A n ETB	04 01 41 n 17	Brightness adjustment 1 n 4
EOT SOH % ETB	04 01 25 17	Initialize display

*International Font Set Table

n(Hex)	Font Set
30h	U.S.A.
31h	FRANCE
32h	GERMANY
33h	U.K.
34h	DENMARK I
35h	SWEDEN
36h	ITALY
37h	SPAIN
38h	JAPAN
39h	NORWAY
3Ah	DENMARK II

8. CD5220

Command	Sub-Item (Hex)	Description
ESC DC1	1B 11	Overwrite mode
ESC DC2	1B 12	Vertical scroll mode
ESC DC3	1B 13	Horizontal scroll mode
ESC Q A CR	1B 51 41 [N]20 0D	Set string display mode, write string to upper line
ESC Q B CR	1B 51 42 [N]20 0D	Set string display mode, write string to lower line
ESC Q D CR	1B 51 44 [N]m20 0D	Upper line message scroll continuously m<40
ESC [D	1B 5B 44	Move cursor left
BS	08	Move cursor left
ESC [C	1B 5B 43	Move cursor right
HT	09	Move cursor right
ESC [A	1B 5B 41	Move cursor up
ESC [B	1B 5B 42	Move cursor down
LF	0A	Move cursor down
ESD [H	1B 5B 48	Move cursor to home position
HOM	0B	Move cursor to home position
ESC [L	1B 5B 4C	Move cursor to left-most position
CR	0D	Move cursor to left-most position
ESC [R	1B 5B 52	Move cursor to right-most position
ESC [K	1B 5B 4B	Move cursor to bottom position
ESC I x y	1B 6C x y	Move cursor to specified position 1 x 20(column); y=1,2(row)
ESC @	1B 40	Initialize display
ESC W s x1 x2 y	1B 57 s x1 x2 y	Enable or disable the window range at horizontal scroll mode s=0,1 (disable, enable) 1 x1 x2 20(column);y=1,2(row)
CLR	0C	Clear display screen, and clear string mode
CAN	18	Clear cursor line, and clear string mode
ESC * n	1B 2A n	Brightness adjustment 1 n 4
ESC & s n m [a(pl..p5)] (m-n+1)	1B 26 s n m [a(pl..p5)] (m-n+1)	Define download characters S=1; 32 n m 126; a=5 (p1..p5=pattern 1 .. pattern 5)
ESC ? n	1B 3F n	Delete download characters 32 n 126(n=character code)
ESC % n	1B 25 n	Select / cancel download character set. n=0, canceled ; n=1, selected
ESC _ n	1B 5F n	Set cursor ON/OFF n=0,1 (Off,On)
ESC f n	1B 66 n	Select international fonts set
ESC c n	1B 63 n	Select fonts, ASCII code or JIS code

9. EMAX

Command	Sub-Item (Hex)	Description
ESC DC1	B 11	Overwrite mode
ESC DC2	1B 12	Vertical mode
ESC DC3	1B 13	Horizontal scroll mode
ESC [D	1B 5B 44	Move cursor left
BS	08	Move cursor left
ESC [C	1B 5B 43	Move cursor right
HT	09	Move cursor right
ESC [A	1B 5B 41	Move cursor up
ESC [B	1B 5B 42	Move cursor down
ESC [H	1B 5B 48	Move cursor to home position
HOM	0B	Move cursor to home position
ESC [L	1B 5B 4C	Move cursor to left-most position
CR	0D	Move cursor to left-most position
ESC [R	1B 5B 52	Move cursor to right-most position
ESC [K	1B 5B 4B	Move cursor to bottom position
ESC I x y	1B 6C x y 1 x 20, y = 1,2	Move cursor to specified position
ESC @	1B 40	Initialize display
CLR	0C	Clear display screen, and clear string mode
CAN	18	Clear cursor line, and clear string mode
ESC * n	1B 2A n 1 n 4	Brightness mode
ESC _ n	1B 5F n n = 0,1	Set cursor ON/OFF
ESC f n	1B 66 n	Select international fonts
ESC c n	1B 63 n	Select fonts, ASCII code or JIS code
ESC = n	1B 3D	Select peripheral device, display or printer n = 1; enable printer, disable display n = 2; disable printer, enable display n = 3; enable printer, enable display

*International Font Set Table

n(Hex)	Font Set
41h	U.S.A.
47h	GERMANY
49h	ITALY
4Ah	JAPAN
55h	U.K.
46h	FRANCE
53h	SPAIN
4Eh	NORWAY
57h	SWEDEN
44h	DENMARK I
45h	DENMARK II
4Ch	SLAVONIC
	RUSSIA
52h	Reserved

*Select Code Table

n(Decimal)	International Code
41h	Compliance with ASCII code
4Ah	Compliance with JIS code

10. LOGIC CONTROL

Command	Sub-Item (Hex)	Description
^Q	11	Overwrite mode
^R	12	Vertical mode
^I	09	Horizontal tab
^H	08	Back space
^J	0A	Line feed
^M	0D	Carriage return
^S	13	Cursor on
^T	14	Cursor off
^P	10	Digital select e.g.10 00 MSD of top row 10 13 LSD of top row 10 14 MSD of bottom row 10 27 LSD of bottom row
^	1F	Reset
^D n	04 n	Brightness mode 04 FF – 100% Brightness mode 04 60 – 60% Brightness mode 04 40 – 40% Brightness mode 04 20 – 20% Brightness mode

Software Utility Specification (Protech's in-house utility)

Item Sub-Item
Baud Rate Setting
Command Type Setting
Internation Character Set
Code Page update Utility
Firmware update Utility
MP Testing Utility

1.Baud Rate Setting

Item Sub-Item	Sub-Item	Description
Baud Rate	-	9600/19200

2.Command Type Setting

Hex Code	Command Type
00h	EPSON POS D101
01h	LD220(P4000)
02h	ADM788
03h	LOGIC CONTROL
04h	UTC/S
05h	UTC/E
06h	DSP800
07h	CD5220
08h	EMAX
09h	AEDEX

3.Language Support & International Character Set

International Character Set (Code 20H~7FH)	Code Table (Code 80H~FFH)
U.S.A.	PC-437
FRANCE	PC-850
GERMANY	PC-850
U.K.	PC-850
DENMARK I	PC-850
SWEDEN	PC-850
ITALY	PC-850
SPAIN	PC-850
JAPAN	Katakana
NORWAY	PC-865
DENMARK II	PC-850
SLAVONIC/RUSSIAN	PC-437
TURKISH	PC-857

3-3-2-3. Character Set

1. U.S.A (Standard Character Set) (20h~7Eh)

	_0	_1	_2	_3	_4	_5	_6	_7	_8	_9	_A	_B	_C	_D	_E	_F
2_		!	"	#	\$	%	&	'	()	*	+	,	-	.	/
3_	0	1	2	3	4	5	6	7	8	9	:	;	<	=	>	?
4_	@	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
5_	P	Q	R	S	T	U	V	W	X	Y	Z	[\]	^	_
6_	`	a	b	c	d	e	f	g	h	i	j	k	l	m	n	o
7_	p	q	r	s	t	u	v	w	x	y	z	{		}	~	

2. International Character Selection

No.	International	23	24	40	5B	5C	5D	5E	60	7B	7C	7D	7E
0	U.S.A.	#	\$	@	[\]	^	`	{		}	~
1	FRANCE	#	\$	à	°	Ç	§	^	`	é	ù	è	¨
2	GERMANY	#	\$	§	Ä	Ö	Ü	^	`	ä	ö	è	β
3	U.K.	£	\$	@	[\]	^	`	{		}	~
4	DENMARK I	#	\$	@	Æ	Φ	Â	^	`	æ	ø	â	~
5	SWEDEN	#	¤	É	Ä	Ö	Å	Ü	é	ä	ö	å	ü
6	ITALY	#	\$	@	°	\	é	^	ù	à	ò	è	ì
7	SPAIN	℞	\$	@	ı	Ñ	ı	^	`	¨	ñ	}	~
8	JAPAN	#	\$	@	[¥]	^	`	{		}	~
9	NORWAY	#	¤	É	Æ	Ø	Å	Ü	é	æ	ø	å	ü
10	DENMARK II	#	\$	É	Æ	Ø	Å	Ü	é	æ	ø	å	ü
11	SLAVONIC	#	\$	@	[\]	^	`	{		}	~
12	RUSSIA	#	\$	@	[\]	^	`	{		}	~

3. Code Page

CP-437

	_0	_1	_2	_3	_4	_5	_6	_7	_8	_9	_A	_B	_C	_D	_E	_F
0_																
1_																
2_		!	"	#	\$	%	&	'	()	*	+	,	-	.	/
3_	0	1	2	3	4	5	6	7	8	9	:	;	<	=	>	?
4_	@	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
5_	P	Q	R	S	T	U	V	W	X	Y	Z	[\]	^	_
6_	`	a	b	c	d	e	f	g	h	i	j	k	l	m	n	o
7_	p	q	r	s	t	u	v	w	x	y	z	{		}	~	
8_	Ç	ü	é	â	ä	à	ç	ê	ë	è	ï	î	ì	Ä	Å	
9_	É	æ	Æ	ô	ö	ò	û	ù	ÿ	Ö	Ü	¢	£	¥	Ɔ	f
A_	á	í	ó	ú	ñ	Ñ	ª	º	¿	¬	½	¼	¡	«	»	
B_	▒	▒	▒		┌	┐	└	┘	┌	┐	└	┘	┌	┐	└	┘
C_	┌	┐	└	┘	┌	┐	└	┘	┌	┐	└	┘	┌	┐	└	┘
D_	┌	┐	└	┘	┌	┐	└	┘	┌	┐	└	┘	┌	┐	└	┘
E_	α	β	Γ	π	Σ	σ	μ	τ	Φ	Θ	Ω	δ	∞	φ	ε	∩
F_	≡	±	≥	≤		J	÷	≈	°	·	·	√	n	²	■	





Japanese Katakana

	_0	_1	_2	_3	_4	_5	_6	_7	_8	_9	_A	_B	_C	_D	_E	_F
8_	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
9_	■	■	■	■	■	■	■	→	←	↑	↓	×	÷	±	≤	≥
A_		・	「	」	、	・	ヲ	フ	イ	ウ	エ	オ	ヤ	ユ	ヨ	ツ
B_	■	ア	イ	ウ	エ	オ	カ	キ	ク	ケ	コ	サ	ツ	ス	セ	ソ
C_	タ	チ	ツ	テ	ト	ナ	ニ	ヌ	ネ	ノ	ハ	ヒ	フ	ヘ	ホ	マ
D_	ミ	ム	メ	モ	ヤ	ユ	ヨ	ラ	リ	ル	レ	ロ	ワ	ン	“	°
E_	□	■	■	○	●	◇	◆	◆	▶	◀	▲	▼	《	》	½	¼
F_	°C	〒	小	中	大	人	分	円	年	土	金	木	水	火	月	日

CP-850

	_0	_1	_2	_3	_4	_5	_6	_7	_8	_9	_A	_B	_C	_D	_E	_F
8_	Ç	ü	é	â	ä	à	å	ç	ê	ë	è	ï	î	ì	Ä	Å
9_	É	æ	Æ	ô	ö	ò	û	ù	ÿ	Ö	Û	ø	£	Ø	×	f
A_	á	í	ó	ú	ñ	Ñ	ª	º	¿	®	¬	½	¼	¡	«	»
B_	■	■	■		┌	Á	Â	À	©	┐		└	┘	¢	¥	└
C_	└	┌	┐	└	┌	ã	Ã	└	┐	└	┘	└	┘	—	+	¤
D_	ð	Ð	Ê	Ë	È	Ì	Í	Î	Ï	┐	└	■	■	:	Ï	■
E_	Ó	ß	Ô	Õ	õ	Õ	µ	þ	Þ	Û	Û	Û	ý	Ý	-	´
F_		±	■	¾	¶	§	÷	¸	°	¨	·	¹	³	²	■	

CP-865

	_0	_1	_2	_3	_4	_5	_6	_7	_8	_9	_A	_B	_C	_D	_E	_F	
8_	Ç	ü	é	â	ä	à	å	ç	ê	ë	è	ï	î	ì	Ä	Å	
9_	É	æ	Æ	ô	ö	ò	û	ù	ÿ	Ö	Ü	ø	£	Ø	Ɔ	f	
A_	á	í	ó	ú	ñ	Ñ	ª	º	¿	¬	½	¼	¡	«	¸		
B_					├	┤	├	┤	├	┤	├	┤	├	┤	├	┤	
C_	L	└	┘	└	┘	└	┘	└	┘	└	┘	└	┘	└	┘	└	┘
D_	┌	┐	┑	┒	┓	└	┘	├	┤	├	┤	├	┤	├	┤	├	┤
E_	α	β	Γ	π	Σ	σ	μ	τ	Φ	Θ	Ω	δ	∞	φ	ε	∩	
F_	≡	±	≥	≤	∫	J	÷	≈	°	·	·	√	n	²			

3-3-3. MSR Board**ISO Format:**

Track 1 (IATA)

%	210bpi, 79 ALPHA, 7-bits/characters	?
---	-------------------------------------	---

Track 2 (ABA)

;	75bpi, 40 ALPHA, 5-bits/characters	?
---	------------------------------------	---

Track 3 (THRIFT-TTS)

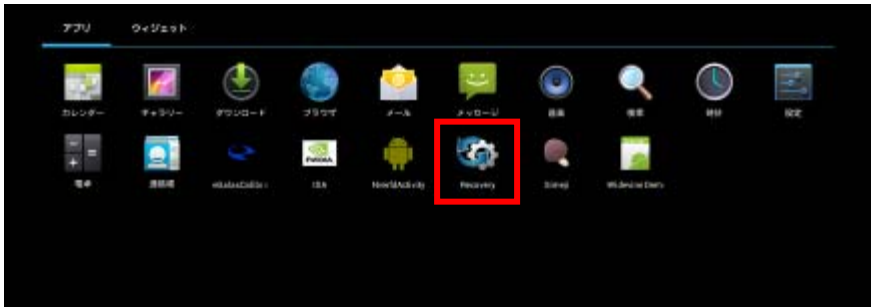
;	210bpi, 107 ALPHA, 5-bits/characters	?
---	--------------------------------------	---

3-4. UTILITY UPDATE

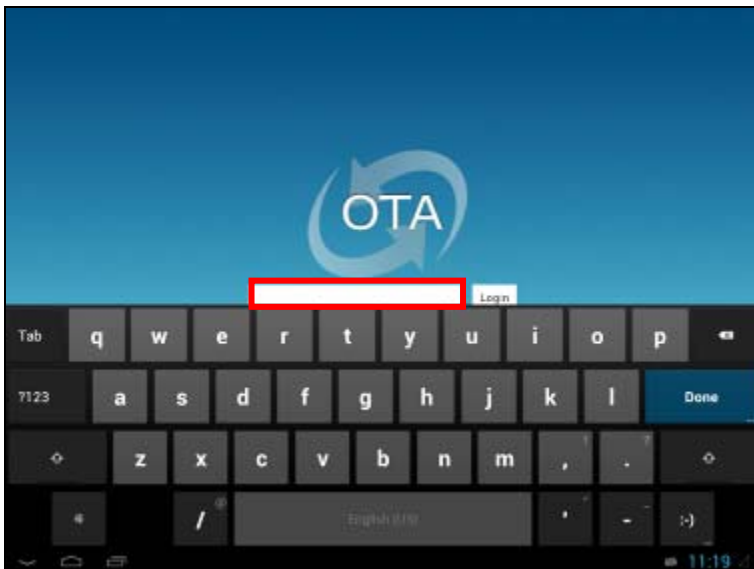
3-4-1. OS

3-4-1-1. Update Android via OTA

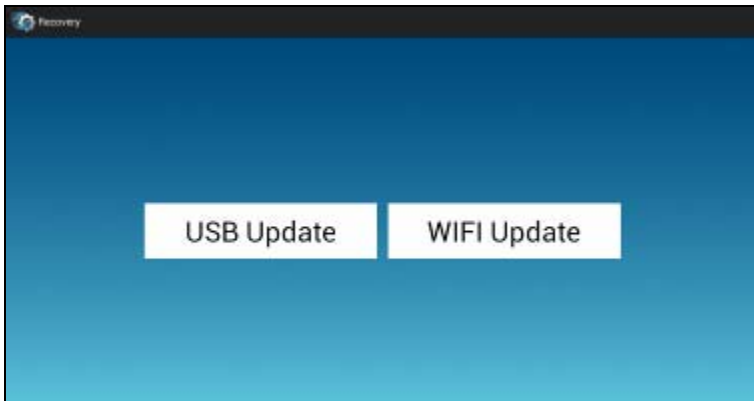
1. Select **Recovery** icon.



2. Type the password “prox” to login.

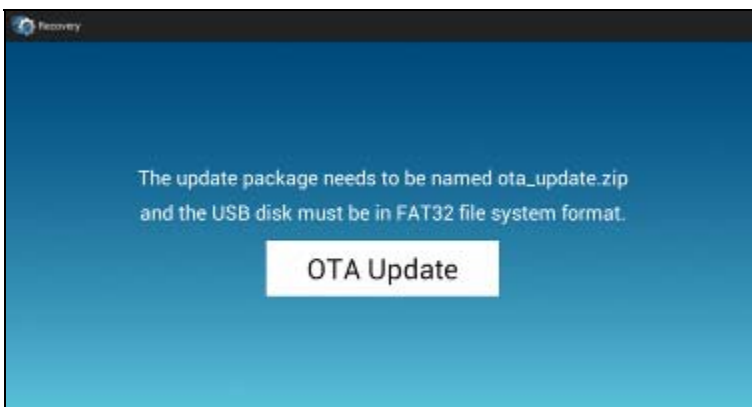


3. There are two ways available for OTA update.



I. With USB

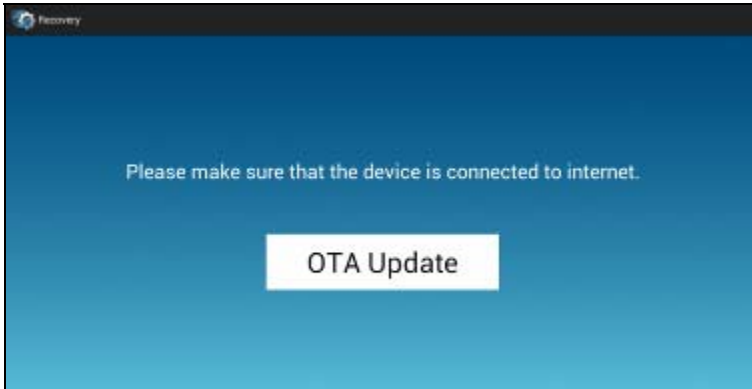
1. Confirm two things in your USB disk. The update package needs to be named *ota_update.zip* and USB disk must be in FAT32 file system format.



2. Put *ota_update.zip* in USB disk and plug into device.
3. Click OTA Update button.

II. With WiFi

1. Firstly make sure the device is connected to Internet.



2. Click OTA update button.
3. Wait for a few minutes and the system will download the update package.



III. Update Progress

1. When the *ota_package.zip* is ready, system will re-boot in recovery mode and update package.
2. Below picture would show up during the update progress.



3. When it finishes, the system will re-boot again to Android.
4. Finished.

3-4-1-2. Update Android Image by Linux PC

Follow below process **carefully**. Before updating starts, make sure you have the same hardware and software environment as follows:

Hardware environment:

- Micro USB to USB:

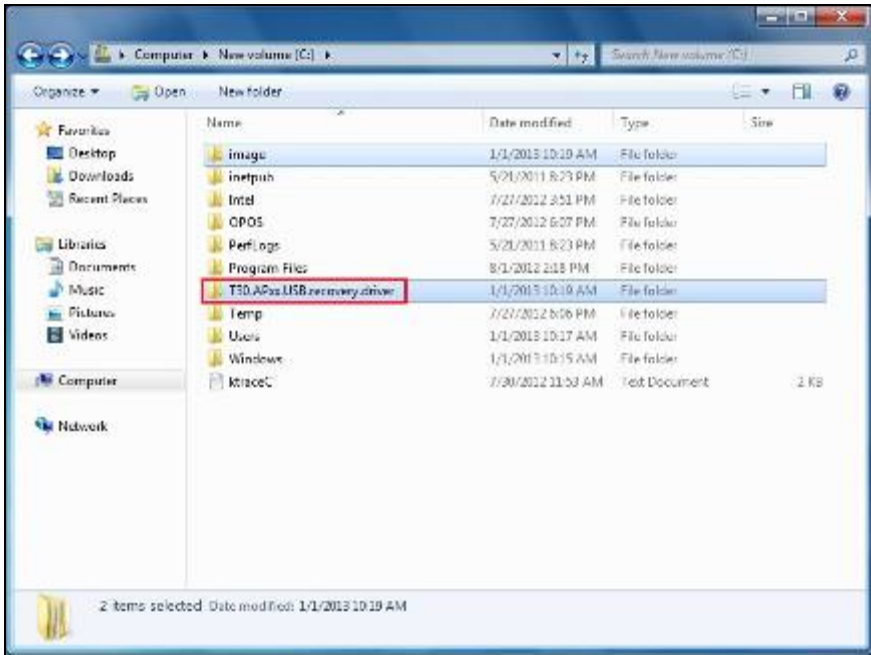


Software environment:

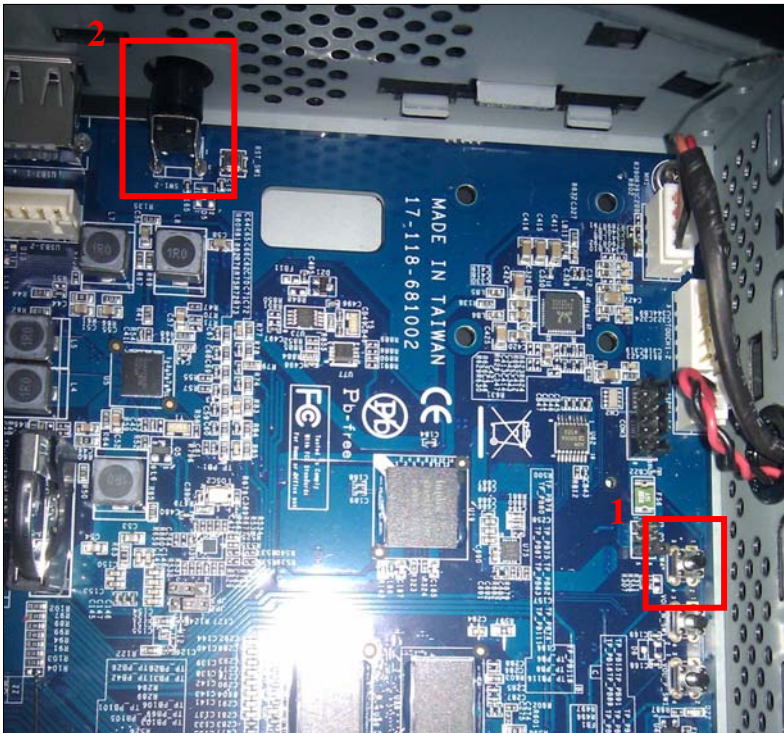
- Operating System: Windows 7
- USB Recovery Driver (Protech will provide)

I. Install USB Recovery Driver

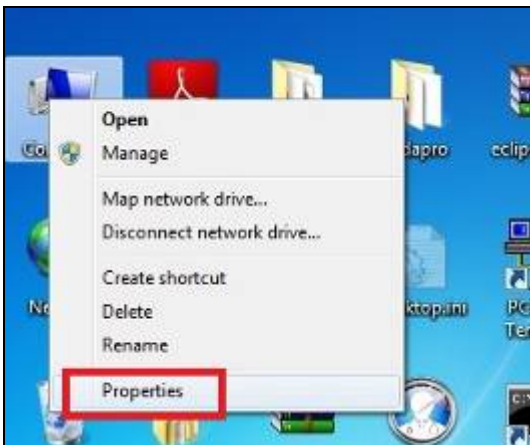
1. Copy the *T30.APxx.USB.recovery.driver* folder to C:\



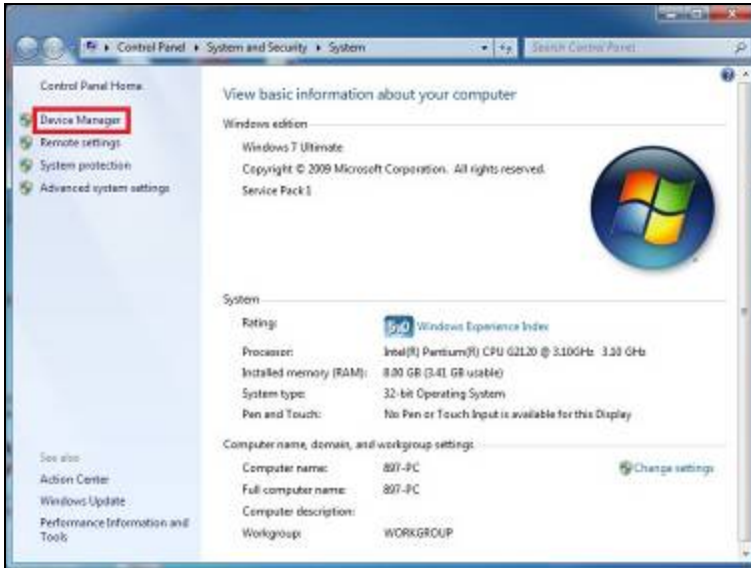
2. Connect power to the board PA-3310. Use micro-USB to connect PA-3310 and computer. Then press **botton 2** for 20 seconds.
Then press **botton 1** and hold it. (Do not release your finger from **botton 1**)
Then press **botton 2**.
Then release your finger from **botton 1**.



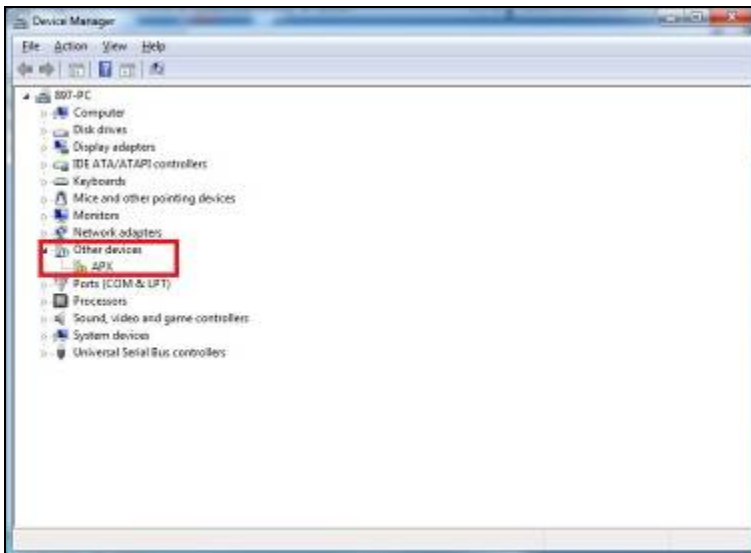
3. Right click on **Computer** icon. Then click **Properties**.



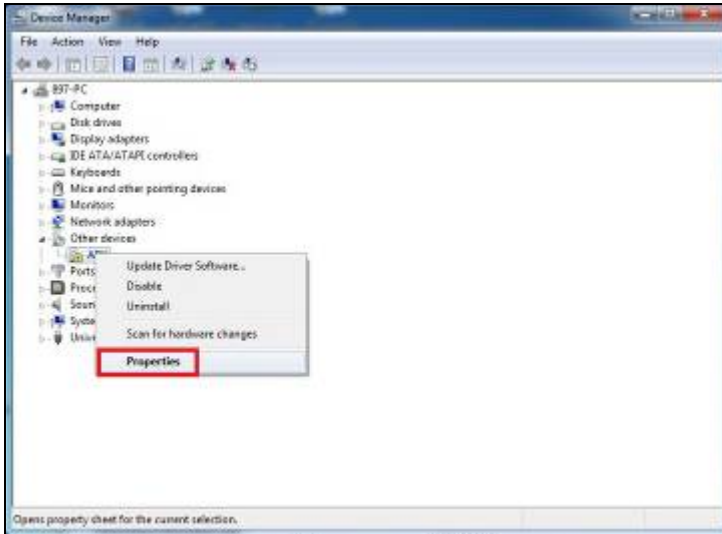
4. Click **Device Manager**.



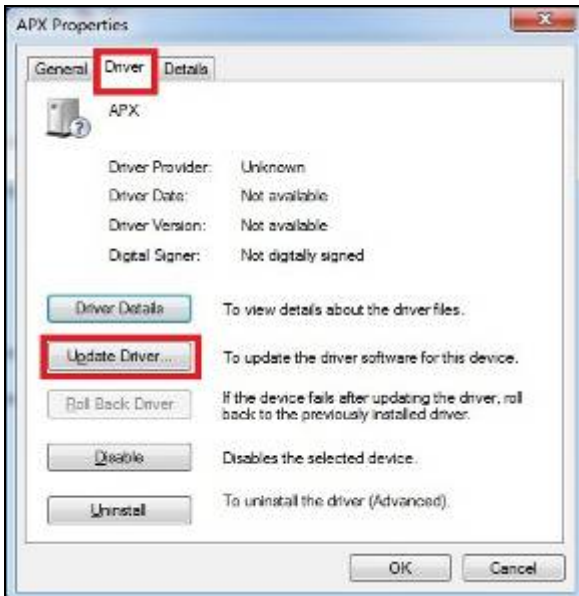
5. You will see the following picture.



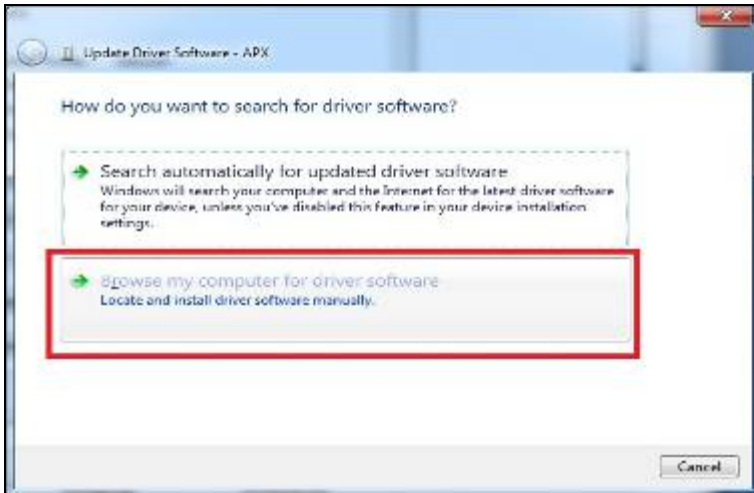
6. Right click **APX**. Then click **Properties**.



7. Click **Driver** then **Update Driver**.



8. Click “Browse my computer for driver software”



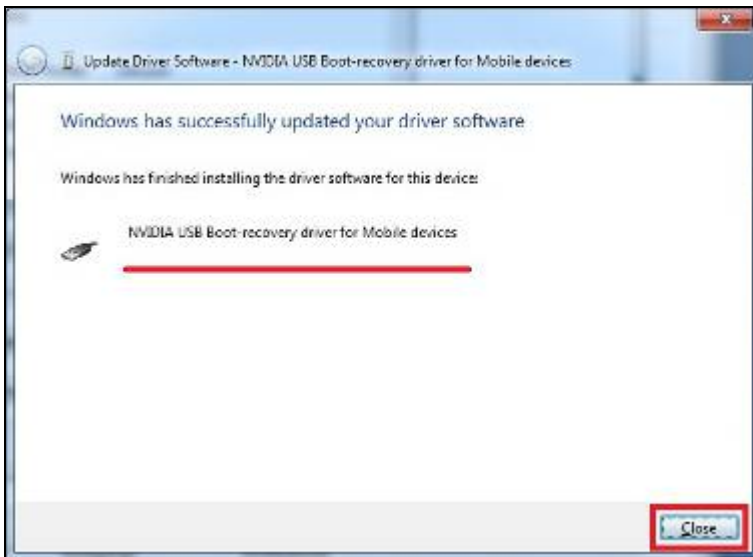
9. Enter “C:\T30.APxx.USB.recovery.driver” and click “Next”



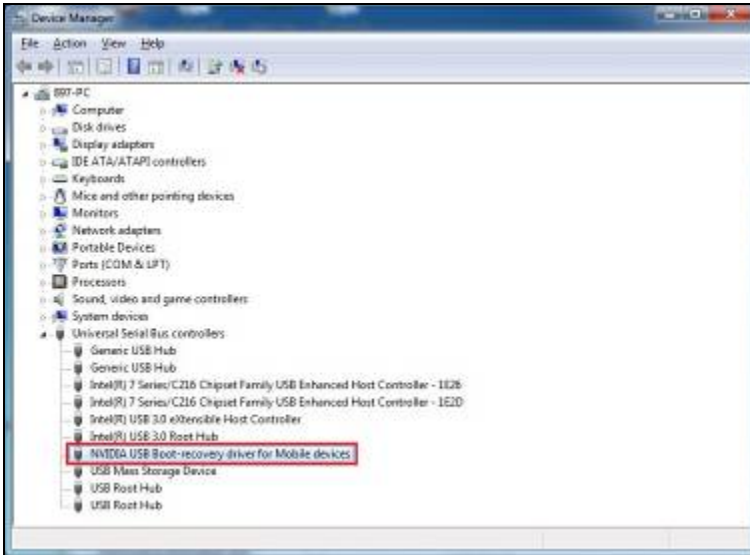
10. If you see the picture below, click **Install this driver software anyway**.



11. After a while, you will see the screen below.

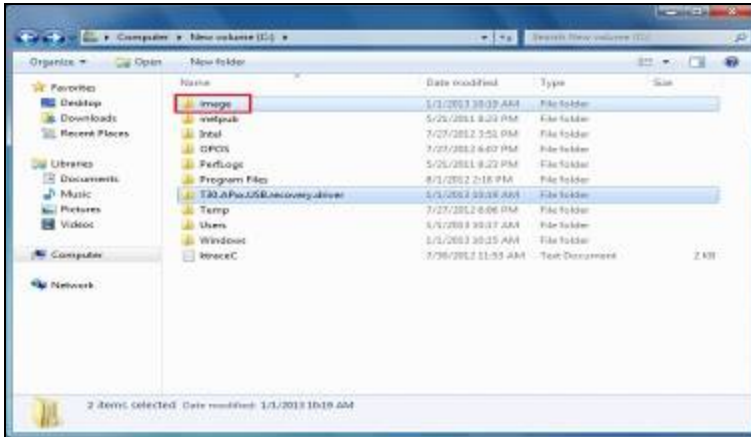


12. You can double check if your driver is successfully installed in **Device Manager**.

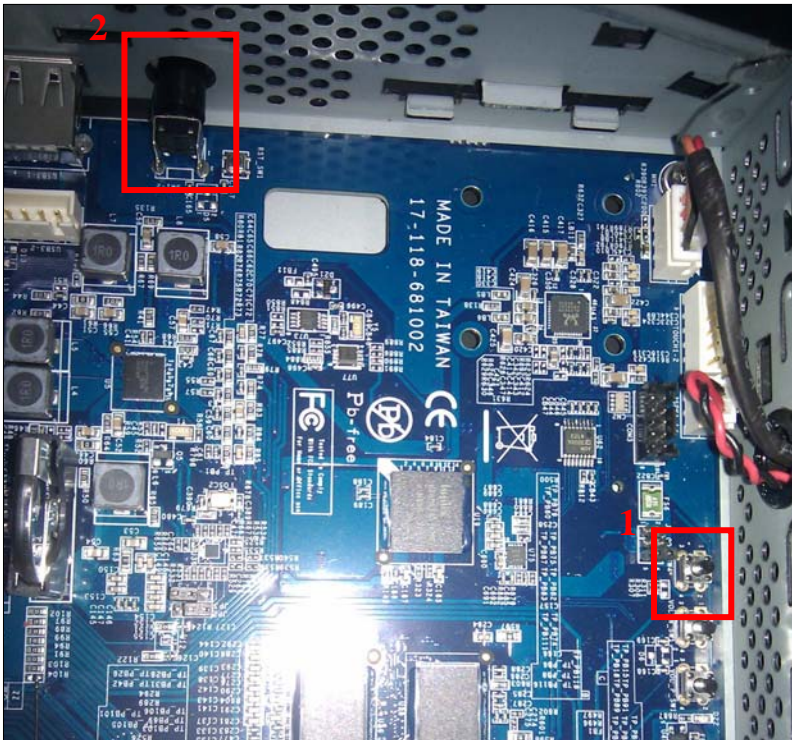


II. Update Android image

1. Copy “image” folder to “C:\”.



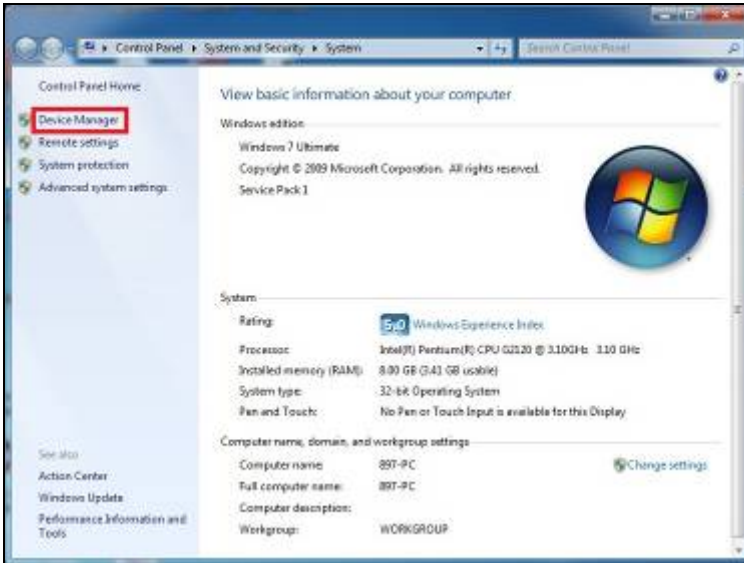
2. Connect power to PA-3310. Use micro-USB to connect PA-3310 and computer. Then press **botton 2** for 20 seconds. Then press **botton 1** and hold it. (Do not release your finger from **botton 1**) Then press **botton 2**. Then release your finger from **botton 1**.



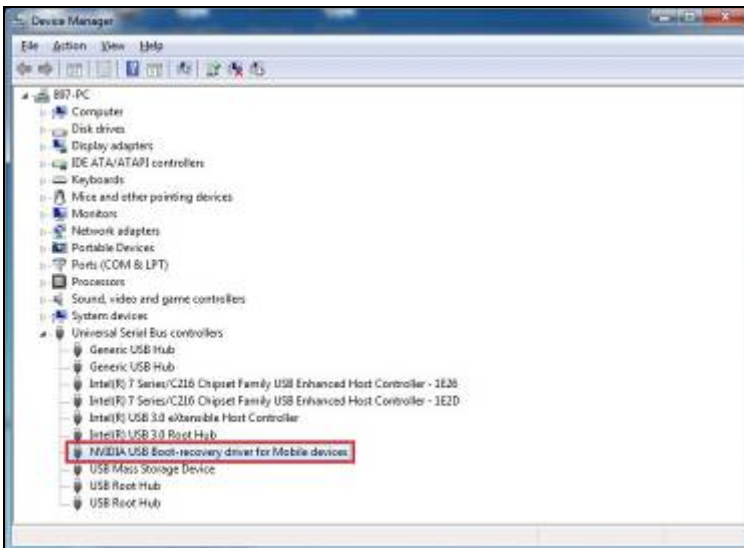
3. Right click on Computer. Then click **Properties**.



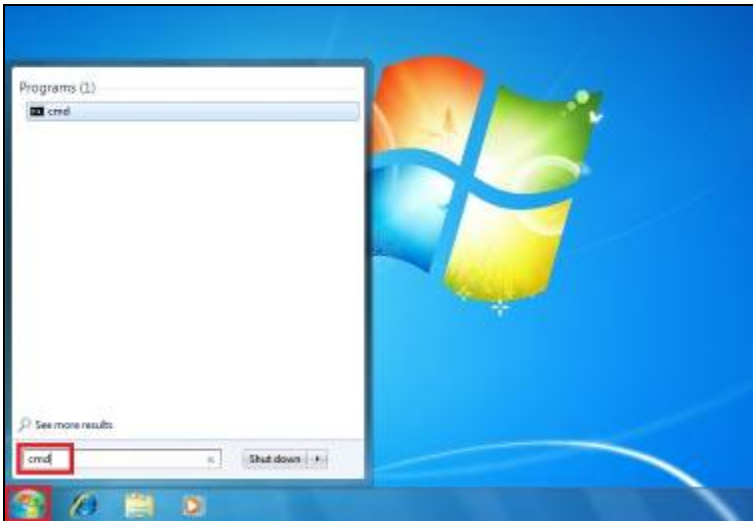
4. Click **Device Manager**.



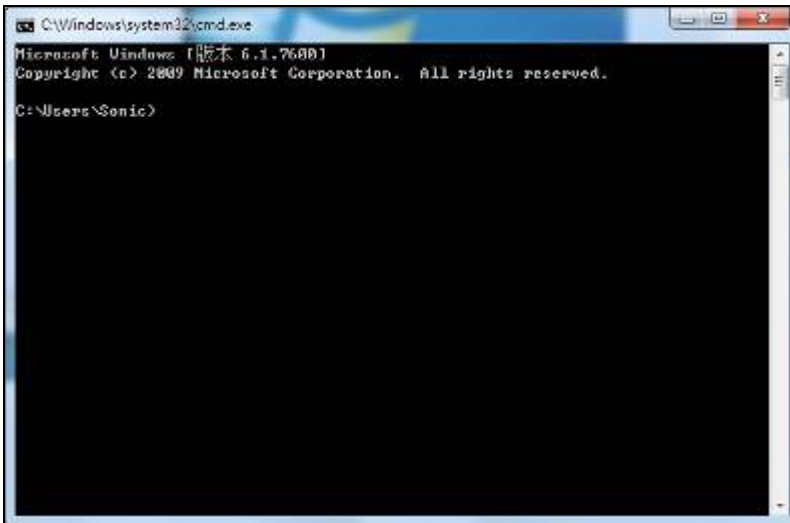
5. Check device status in **Device Manager**. If you don't see **NVIDIA USB Boot-recovery driver for Mobile devices** here, repeat step 2 to 4.



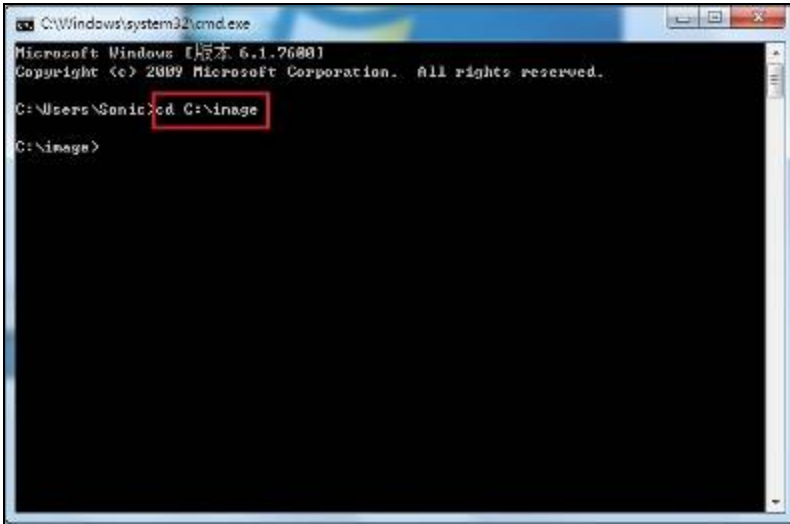
6. Click **Start** in Windows. Then type “cmd” as the picture shows below. Then press Enter.



7. The window below will appear.



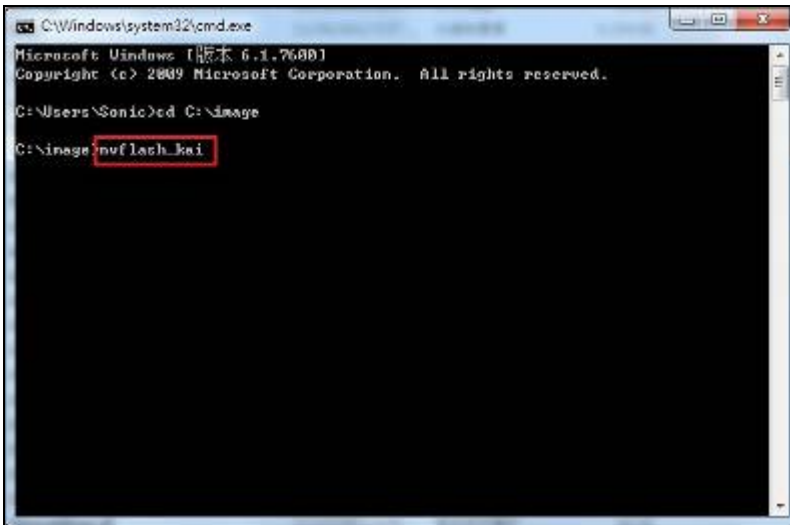
8. Type “**cd C:\image**”, then press Enter.



```
C:\Windows\system32\cmd.exe
Microsoft Windows [版本 6.1.7600]
Copyright (c) 2009 Microsoft Corporation. All rights reserved.

C:\Users\Sonic>cd C:\image
C:\image>
```

9. Type “**nvflash_kai**”, then press Enter.



```
C:\Windows\system32\cmd.exe
Microsoft Windows [版本 6.1.7600]
Copyright (c) 2009 Microsoft Corporation. All rights reserved.

C:\Users\Sonic>cd C:\image
C:\image>nvflash_kai
```

10. Updating.

```

C:\Windows\system32\cmd.exe -start.bat
Copyright (c) 2009 Microsoft Corporation. All rights reserved.

C:\Micro\>cd C:\Nimage

C:\Nimage>mv flash.kal

C:\Nimage>? "of flash.exe" --bat flash.bat --usbdev --usbdata 0x004F0000 --conf inf1
s flash.cfg --create --kl bootloader.bin --go
of flash v1.12.0.9285 started
chip uid from IR is: 0-000000000000000000000000542a50cf40140e
rev version 0530001
System Information:
  chip name: unknown
  chip id: 0x30 major: 1 minor: 0
  chip chr: 0013
  chip uid: 0x000000000000000000000000542a50cf40140e
  microvision: disabled
  nfcps: enabled
  jtag: enabled
  clk bypass: false
  db bypass: false
  boot device: none
  operating mode: 3
  device config strap: 0
  device config fuse: 0
  advan config strap: 1

sending file: flash.bat
- 5128/6128 bytes sent
flash.bat sent successfully
usb data: 0x40000000
downloading boot loader -- load address: 0xF0100000 entry point: 0x00100000
sending file: boot loader.bin
- 952392/952392 bytes sent
boot loader.bin sent successfully
waiting for boot loader to initialize

```

11. When you see **Press enter to continue:**, press Enter.

```

C:\Windows\system32\cmd.exe
Deleting device partitions
creating partition: BCT
creating partition: PT
creating partition: EBT
creating partition: MGC
creating partition: EKE
creating partition: GPI
creating partition: IGE
creating partition: LNK
creating partition: RFP
creating partition: DMC
creating partition: M3C
creating partition: MSP
creating partition: MD0
creating partition: EBD
creating partition: GPI
sending file: boot loader.bin
- 952392/952392 bytes sent
boot loader.bin sent successfully
sending file: microsboot.bin
- 28736/28736 bytes sent
microsboot.bin sent successfully
sending file: ukr.dat
- 44/44 bytes sent
ukr.dat sent successfully
sending file: recovery.img
- 3629952/3629952 bytes sent
recovery.img sent successfully
sending file: boot.img
- 5277696/5277696 bytes sent
boot.img sent successfully
sending file: system.img
- 246108976/246108976 bytes sent
system.img sent successfully
Press enter to continue:

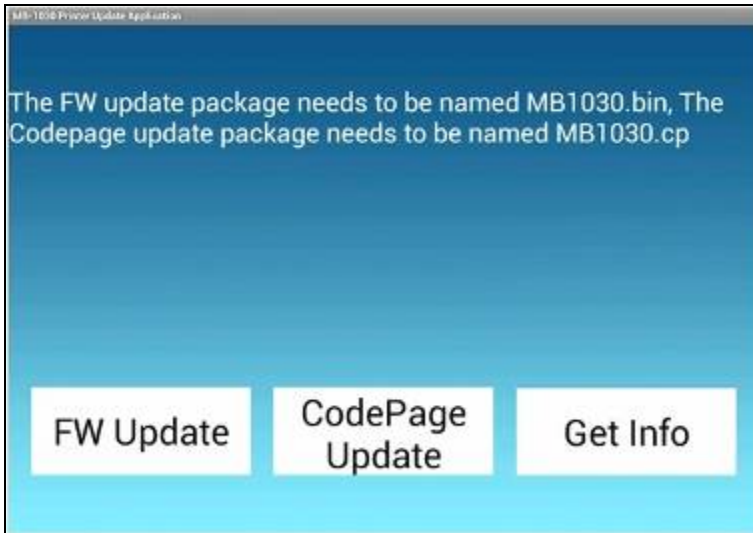
C:\Nimage>

```

12. Then PA-3310 Android image has been updated completely.

3-4-2. Printer Board

1. Prepare Files:
Rename F00-1030-000-01-xxxxxx.bin as “MB1030.bin”.
Copy MB1030.bin to USB storage. Then insert this device into the USB socket.
2. Click **FW Update** button.

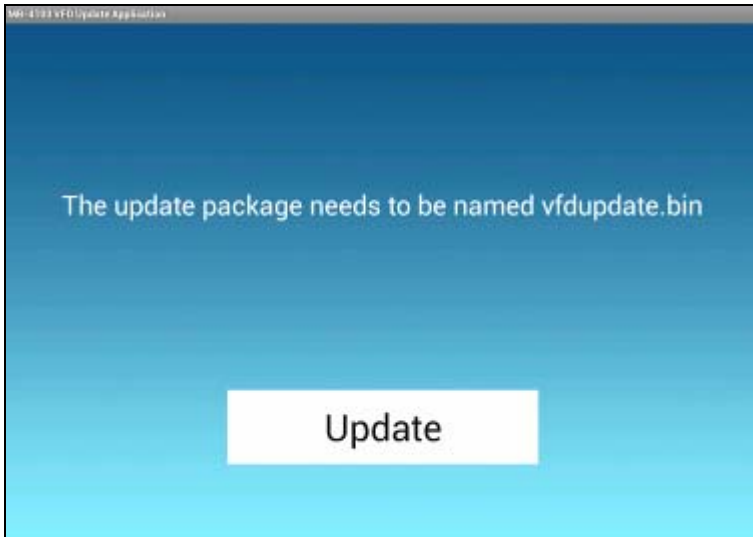


3-4-2-1. Update CGROM CodePage Font

1. Prepare Files:
Rename JPsjis-1030-001-03-xxxxxx.cp as “MB1030.cp”.
Copy MB1030.cp to USB storage. Then insert this device into the USB socket.
2. Click **CodePage Update** button on the same screen as above.

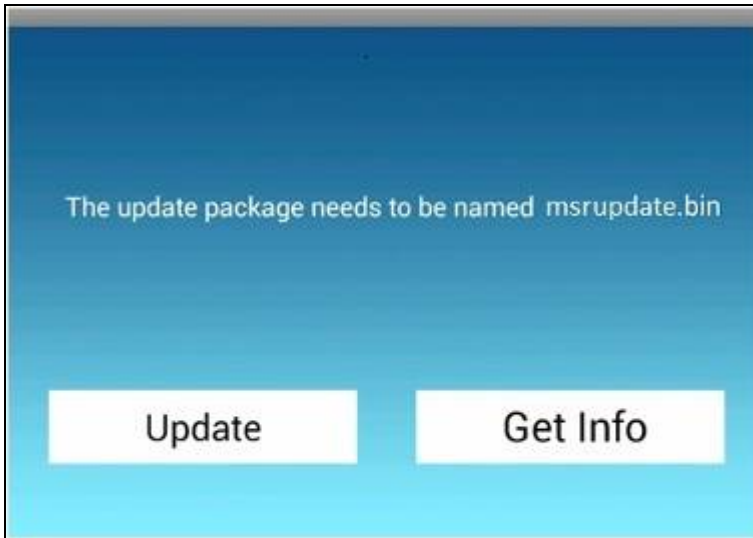
3-4-3. VFD Board

1. Prepare Files:
Rename F00-4103-000-01-xxxxxx.bin to “vfdupdate.bin”.
Copy vfdupdate.bin to USB storage. Then insert this device into the USB socket.
2. Click **Update** button.

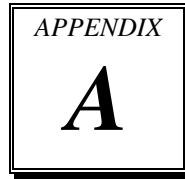


3-4-4. MSR Board

1. Prepare Files:
Rename F00-3013-000-01-xxxxxx.bin to “msrupdate.bin”.
Copy msrupdate.bin to USB storage. Then insert this device into the USB socket.
2. Click **Update** button.



SYSTEM ASSEMBLY

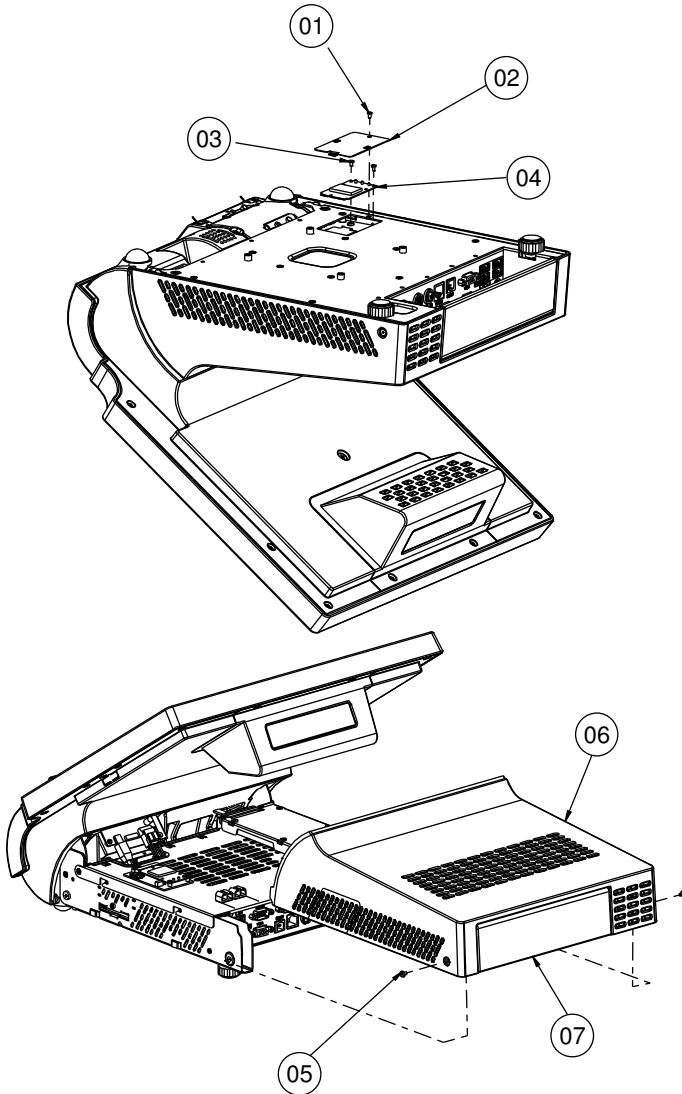


This appendix contains exploded diagrams and part numbers of the PA-3310 system.

Sections included:

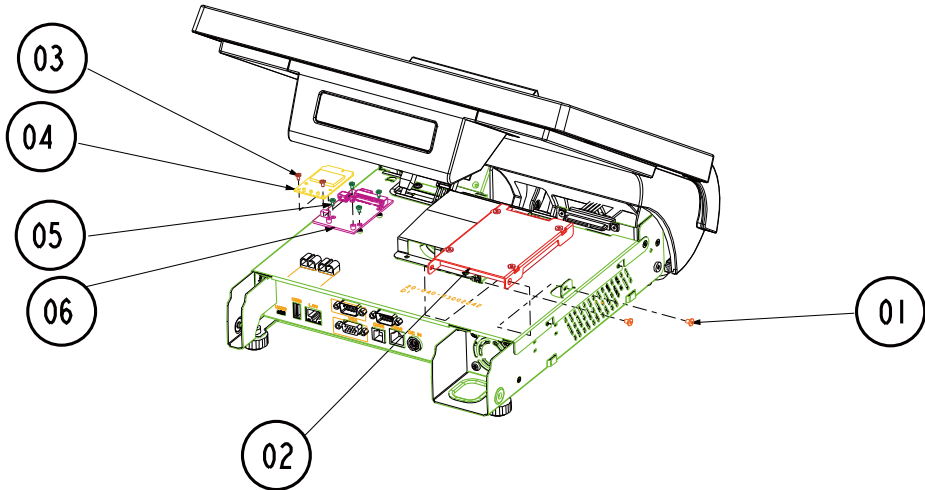
- Exploded Diagram for PA-3310 Base Cover
- Exploded Diagram for PA-3310 Top Case
- Exploded Diagram for PA-3310 CPU Cooler
- Exploded Diagram for PA-3310 Printer Box
- Exploded Diagram for PA-3310 Panel & Base Detachment
- Exploded Diagram for PA-3310 Main Board
- Exploded Diagram for PA-3310 Bottom Case
- Exploded Diagram for PA-3310 LCD Panel
- Exploded Diagram for PA-3310 LCD Holder
- Exploded Diagram for PA-3310 VFD Cover
- Exploded Diagram for PA-3310 3" Printer
- Exploded Diagram for PA-3310 3" Printer Cover
- Exploded Diagram for PA-3310 2" Printer
- Exploded Diagram for PA-3310 2" Printer Cover
- Exploded Diagram for PA-3310 HDD Module
- Exploded Diagram for PA-3310 SSD Module

EXPLODED DIAGRAM FOR PA-3310 BASE COVER



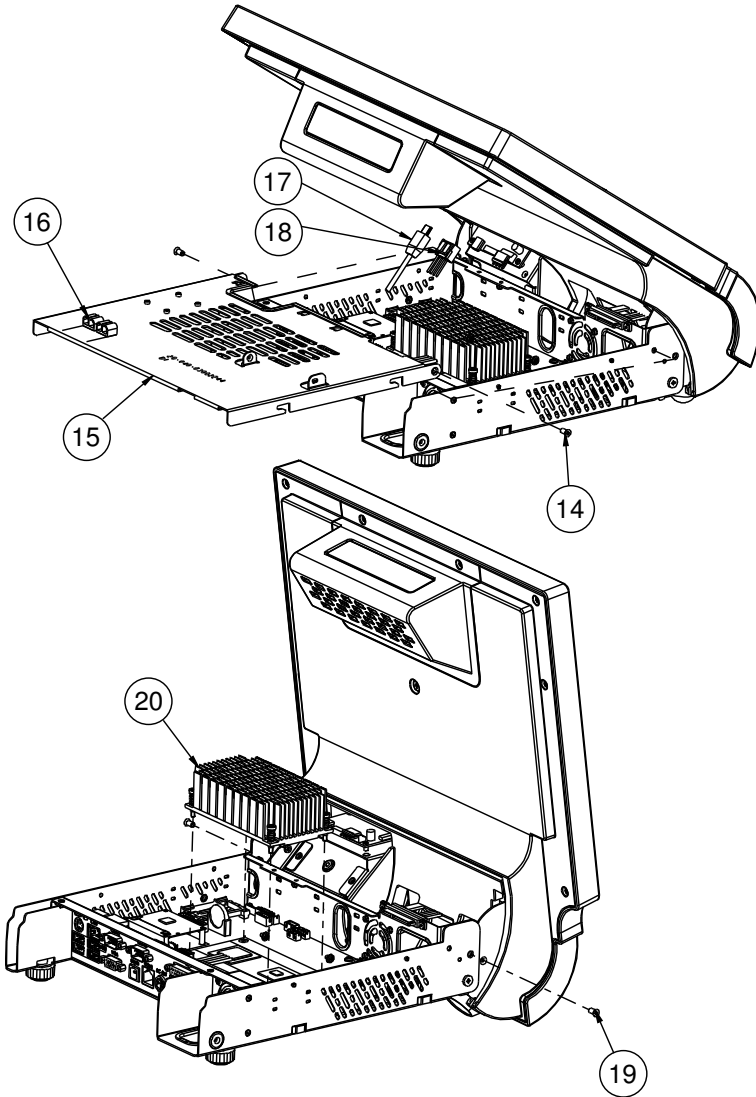
No.	Name	P/N No.	Qt'y
1	M2.5_L4_R_Ni	22-232-25004011	1
2	3350_MINI_PCIE_DOOR	80-047-03001242	1
3	M2_L4_I_Ni	22-272-20004011	2
4	MiniPCIE Card	See Order	1
5	M3_L8_I_B	22-275-30008018	2
6	PA-3350_BASE_COVER	30-002-28410242	1
	PA-3350_BASE_COVER_with_CF	30-002-28510242	
7	PA-3350_CABLE_COVER	30-002-28610242	1

EXPLODED DIAGRAM FOR PA-3310 TOP CASE



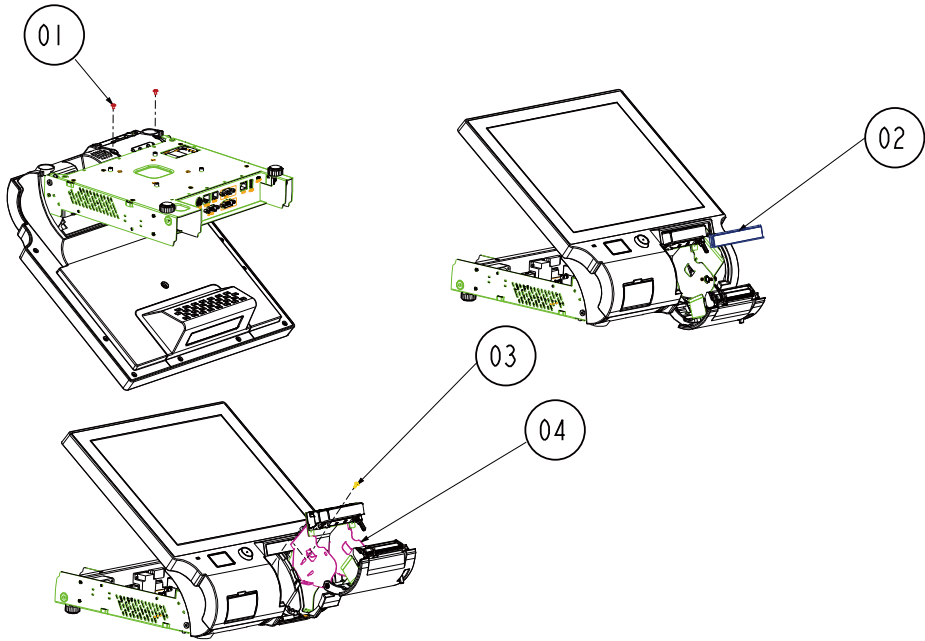
No.	Name	P/N No.	Qty
1	M3_L4_I_Ni	82-272-30004018	2
2	HDD Assembly	--	1
3	M2_L4_I_Ni	22-272-20004011	2
4	MiniPCIE Card	See Order	1
5	M2_L4_I_Ni	22-272-20004011	4
6	3G Card	See Order	1

EXPLODED DIAGRAM FOR PA-3310 CPU COOLER



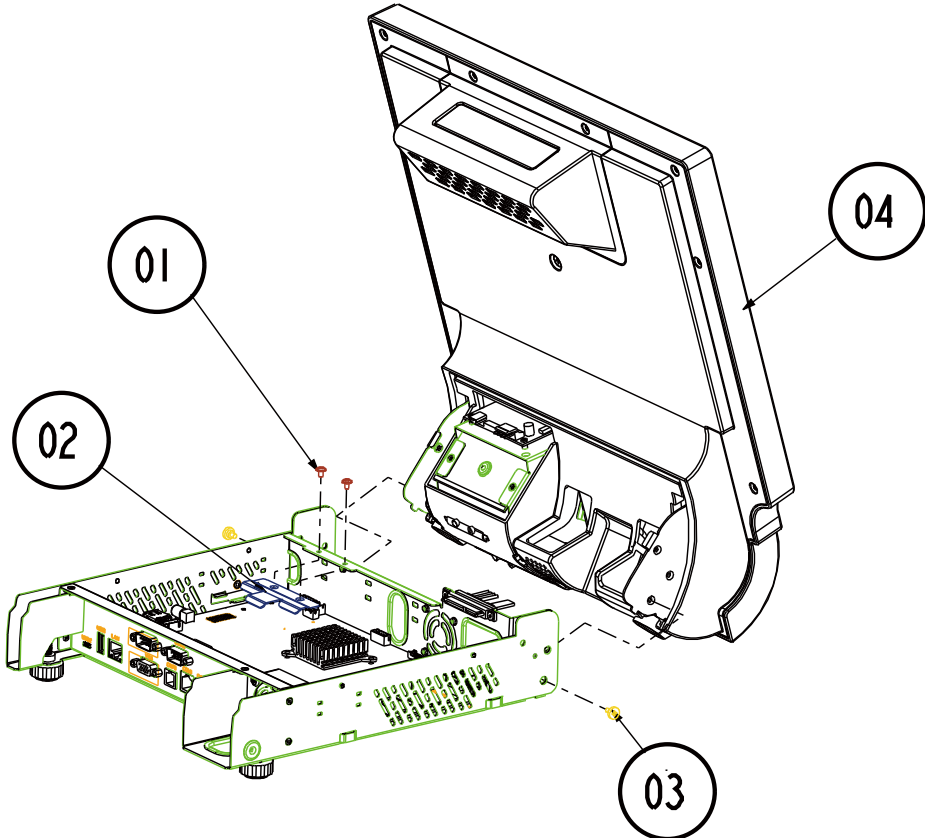
No.	Name	P/N No.	Qty
14	M4_L8_F_B	22-215-40008711	2
15	PA-3320_INSIDE_BOX_TOP	20-040-03002244	1
16	Cable_snap(WLLT-1)	90-023-04600000	2
17	Printer Data Cable	See Order	1
18	Printer Power Cable	See Order	1
19	M4_L8_F_B	22-215-40008711	2
20	CPU cooler Assembly	--	1

EXPLODED DIAGRAM FOR PA-3310 PRINTER BOX



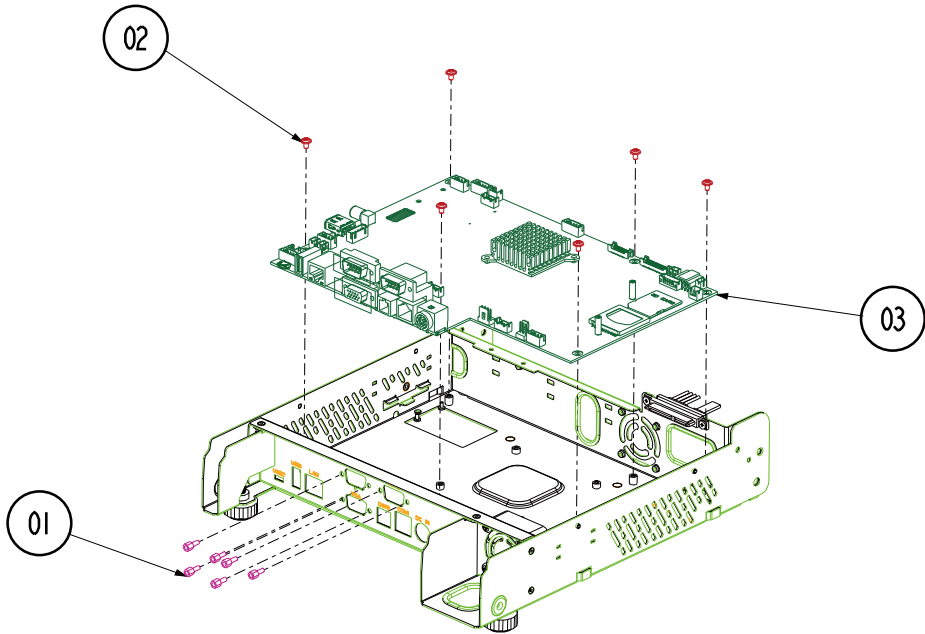
No.	Name	P/N No.	Qty
1	M3_L8_I_B	22-275-30008811	2
2	3350_PRINTER_TOP_COVER	30-002-28310242	1
3	T3_L8_P_B	22-135-30008311	1
4	Printer Assembly	--	1

**EXPLODED DIAGRAM FOR PA-3310 PANEL & BASE
DETACHMENT**



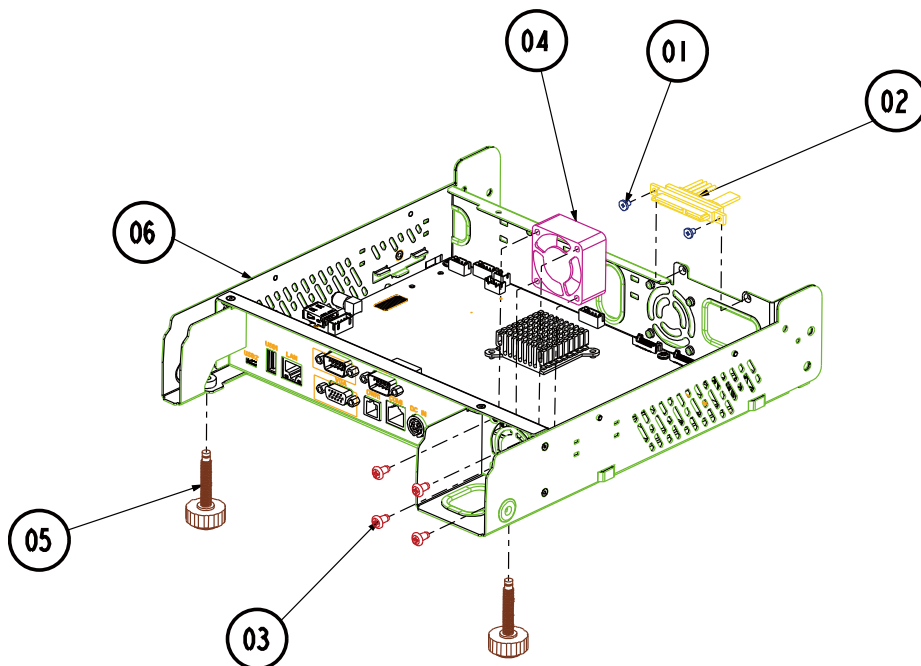
No.	Name	P/N No.	Qty
1	M3_L5_W_Ni	22-242-30005311	2
2	3350_BOX_FRONT_WALL_ADD	80-038-03001242	1
3	M4_L2.2_H4_Ni	22-272-40004911	2
4	LCD_Assembly	--	1

EXPLODED DIAGRAM FOR PA-3310 MAIN BOARD



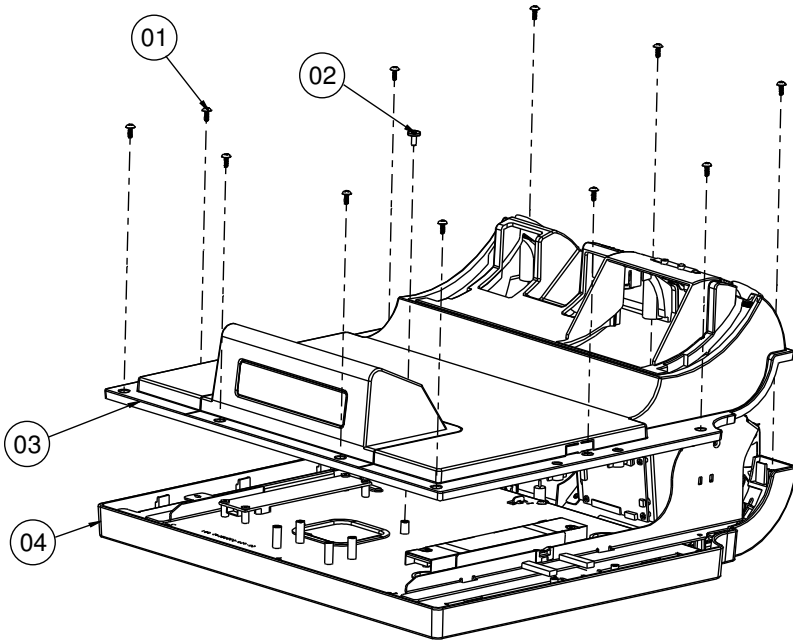
No.	Name	P/N No.	Qty
1	No.4 BOSS	22-692-40048051	6
2	M3_L5_Washer_Ni	22-242-30005311	6
3	PB-6810	PB-6810	1

EXPLODED DIAGRAM FOR PA-3310 BOTTOM CASE

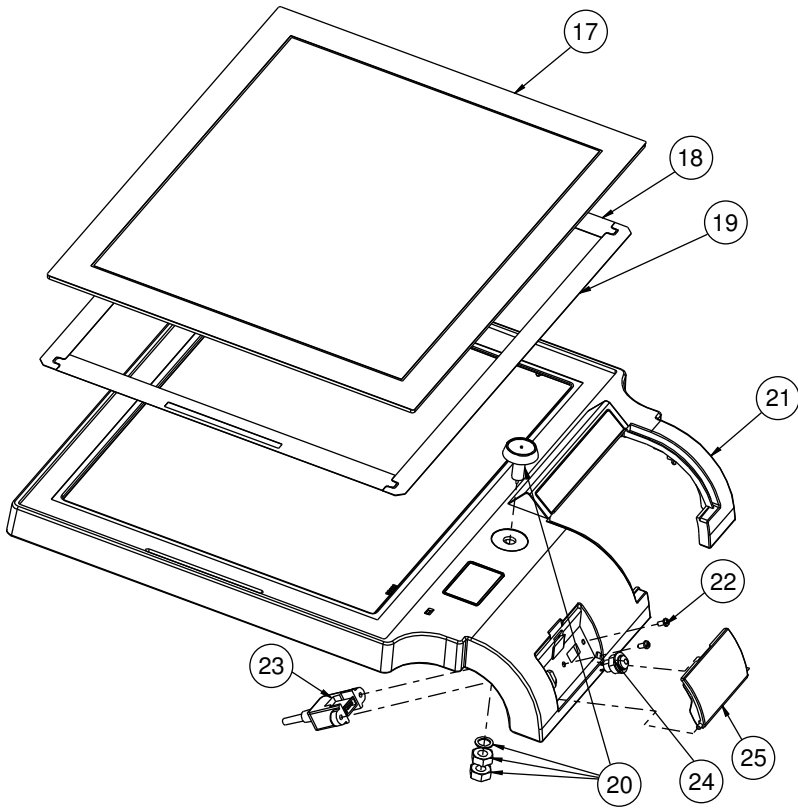


No.	Name	P/N No.	Qty
1	M3_L6_W_Ni	22-232-30060311	2
2	Hdd_cable	27-008-24208081	1
3	T4_L8_F_NI	22-112-40010011	4
4	Sys FAN 40x40x28	21-004-04040161	1
5	M6_Foot	22-289-60035007	2
6	PA-3310_INSIDE_BOX	20-040-03001315	1

EXPLODED DIAGRAM FOR PA-3310 LCD PANEL

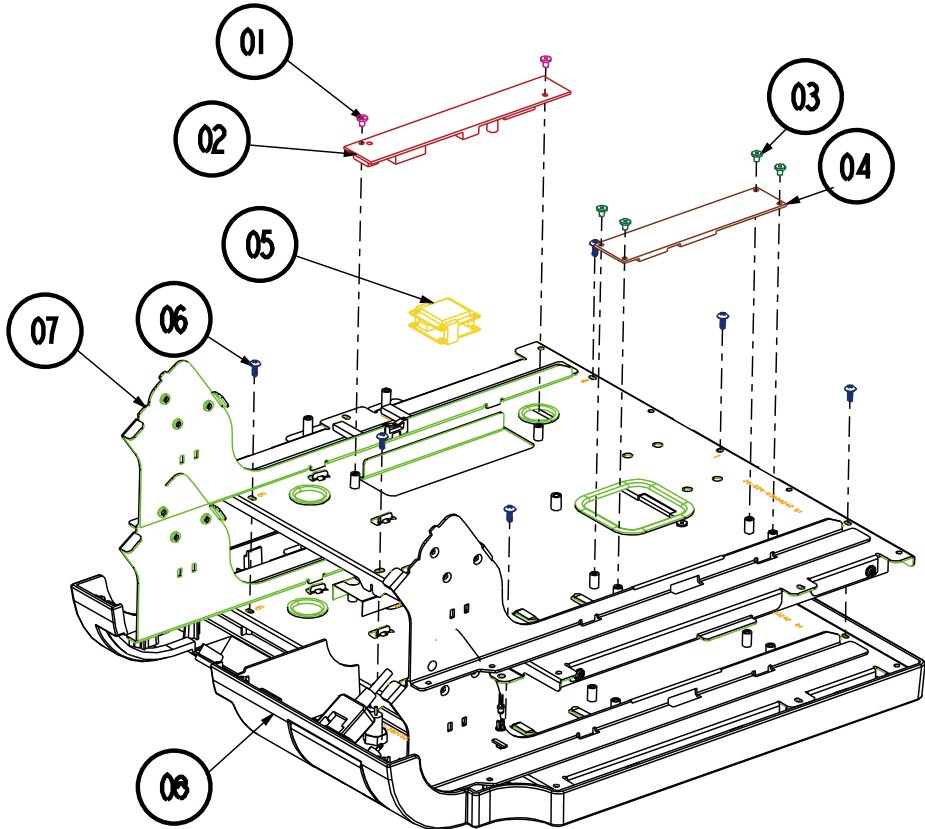


No.	Name	P/N No.	Qt'y
01	T3_L8_P_B	22-135-30008311	11
02	M4_L8_I_B	22-275-40008011	1
03	LCD_Front_Assembly	--	1
04	LCD_Back_Assembly	--	1



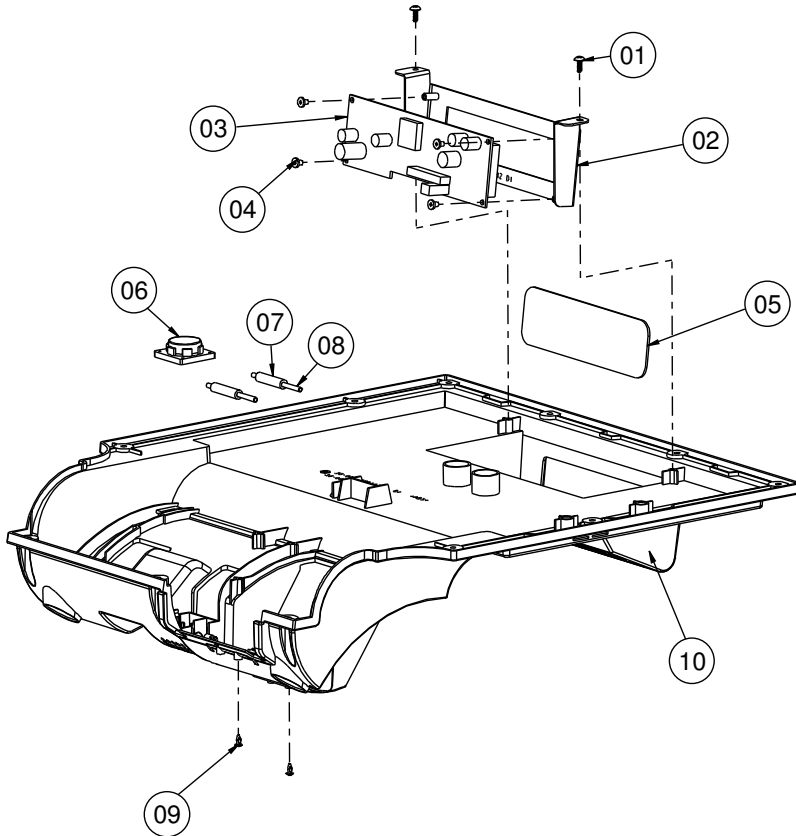
No.	Name	P/N No.	Qt'y
17	ELO Touch	52-380-00114701	1
	Abon Touch(Capacitive)	52-380-00075014	
18	Double Tape B(ELO Use)	94-026-04902220	2
	Double Tape B(Abon Use)	94-026-05002220	
19	Double Tape A(ELO Use)	94-026-04901220	2
	Double Tape A(Abon Use)	94-026-05001220	
20	1-button Kit	52-551-00100002	1
21	PA-3350_LCD_FRONT_COVER	30-002-28110242	1
	PA-3350_LCD_F_COVER_WITHOUT_I	30-002-28110242	
22	Nø4_L6_R_Ni	22-332-04040311	2
23	USB Cable	27-006-24206111	1
24	Switch Cable	27-019-24203071	1
25	PA-3350-FRONT_DOOR	30-007-28110242	1

EXPLODED DIAGRAM FOR PA-3310 LCD HOLDER

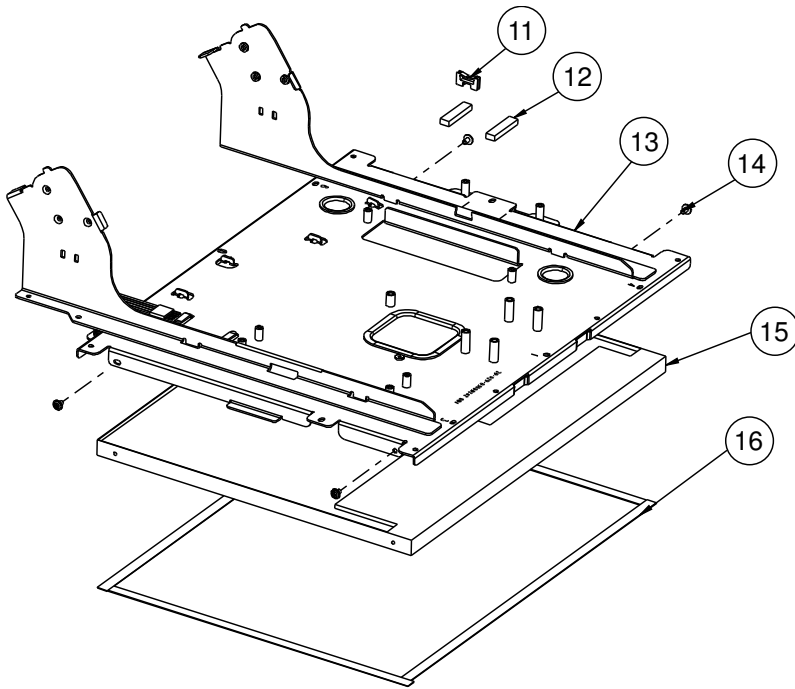


No.	Name	P/N No.	Qty
01	M3_L4_I_Ni	82-272-30004018	2
02	Inverter(GPI502-09A)	52-101-15020503	1
	Inverter cable	27-015-24210111	1
03	M3_L4_I_Ni	82-272-30004018	4
04	Touch control board	52-370-01720007	1
	Touch Cable	27-006-24414111	1
05	RFID	52-151-08321015	1
	RFID Cable	27-068-19907111	1
06	T3_L8_P_B	22-135-30008311	6
07	LCD_Holder Assembly	--	1
08	Front Case Assembly	--	1
No. 3&4 for Capacitive type Touch			

EXPLODED DIAGRAM FOR PA-3310 VFD COVER

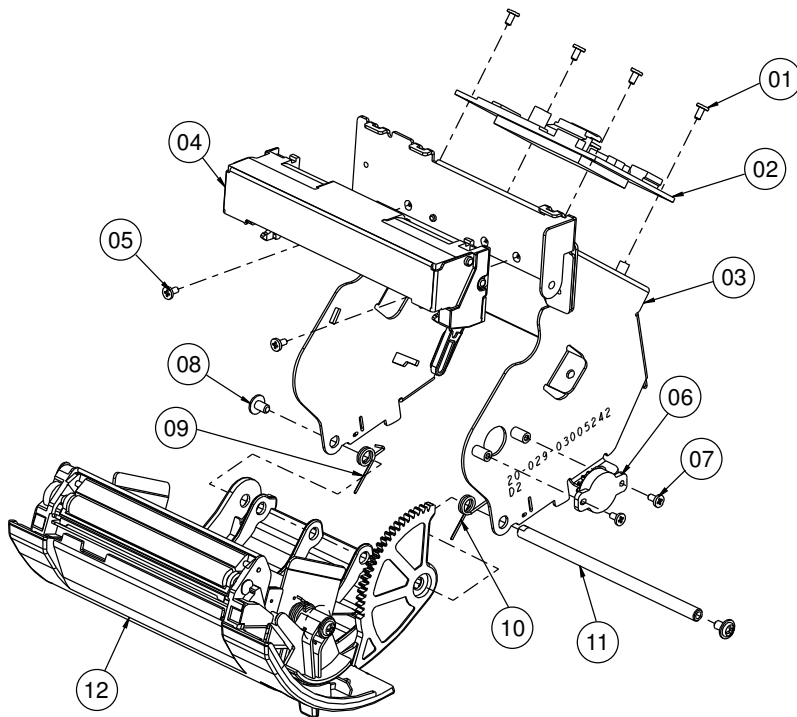


No.	Name	P/N No.	Qt'y
01	T3_L8_P_B	22-135-30008311	2
02	PA-3350_VFD_HOLDER	20-029-03006242	1
03	VFD	52-901-17001703	1
	VFD Cable	27-051-24213111	1
04	M3_L4_I_Ni	82-272-30004018	4
05	POS-6600 VFD LENS	30-021-02130199	1
06	Speaker Cable	XX-XXX-XXXXXXXXXX	1
07	Ø6_L25	30-041-04100165	2
08	D3 PIN	20-045-19012199	2
09	Rivet	90-042-04100000	2
10	PA-3350_LCD_BACK_COVER	30-002-28810242	1
	3350_LCD_BACK_WITHOUT_VFD	30-002-28710242	



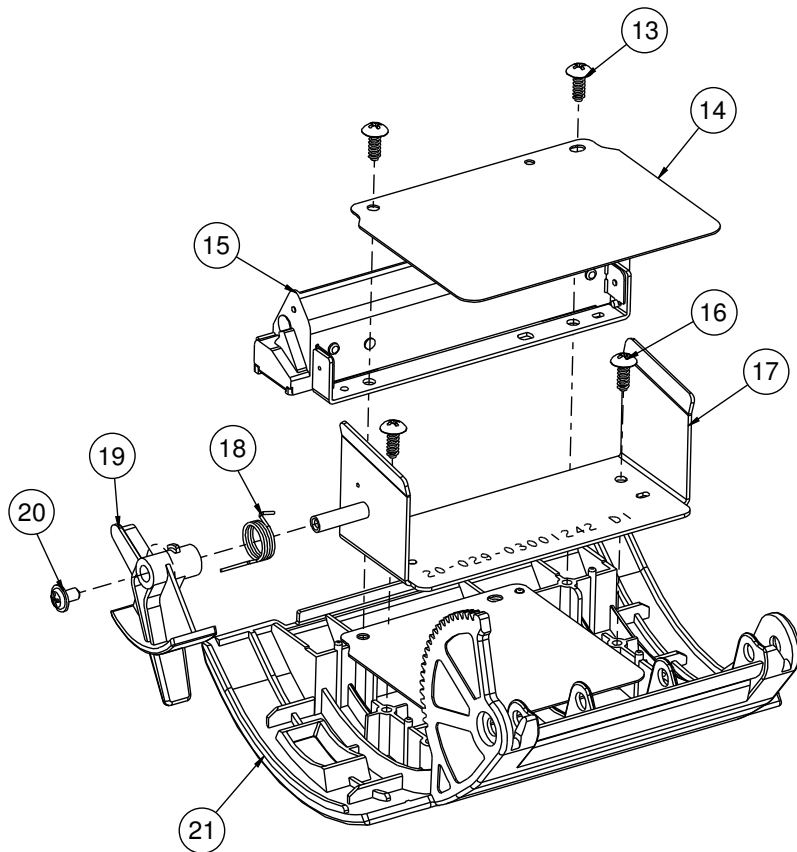
No.	Name	P/N No.	Qty
11	Cable Snap(DS-2-N2W)	90-058-04100000	1
12	EVA Sponge	30-013-15100242	2
13	Lcd holder(witch VFD)	20-029-03004242	1
	Lcd holder(Witchout VFD)	20-029-03003242	
14	M3_L5_Washer_Ni	22-242-30005311	4
15	15" lcd Panel	52-351-03150128	1
16	LCD Pron	30-013-24100000	4

EXPLODED DIAGRAM FOR PA-3310 3" PRINTER



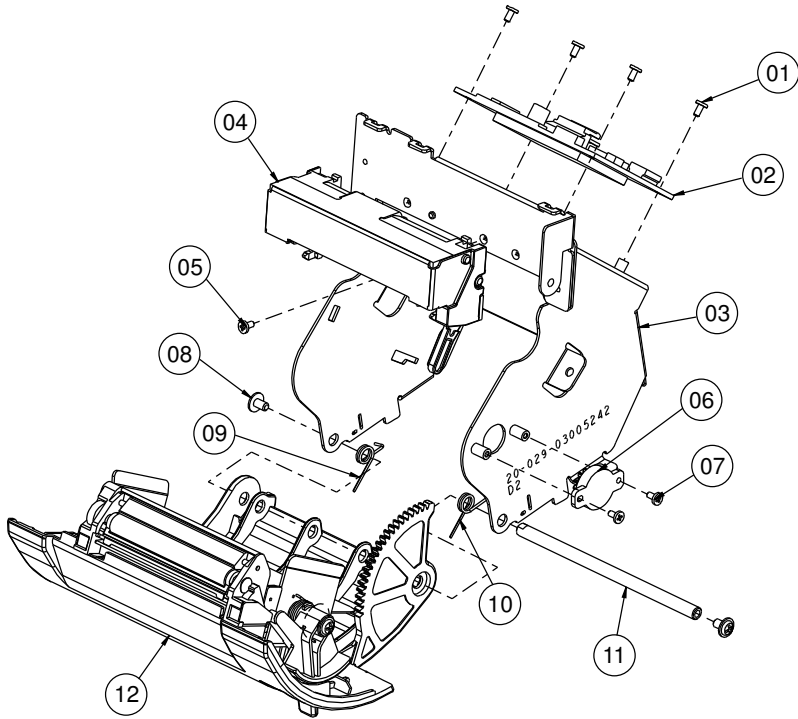
No.	Name	P/N No.	Qt'y
01	M2_L4_W_Ni	22-232-20004311	4
02	Printer Control PCB	See order	1
03	PA-3350_PRINTER_HOLDER	20-029-03005242	1
04	3" Printer	52-701-00017003	1/2
05	M2_L4_I_Ni	22-272-20004011	2
06	Rotary Damper	30-022-09110000	1
07	M2_L4_I_Ni	22-272-20004011	2
08	M3_L5_W_Ni	22-242-30005311	2
09	PA3350-P_DOOR_SPRING_L	23-000-04000502	1
10	PA3350-P_DOOR_SPRING_R	23-000-03000502	1
11	PAPER_COVER_PIN	20-004-10011165	1
12	Printer Front_Assembly	--	1

EXPLODED DIAGRAM FOR PA-3310 3" PRINTER COVER



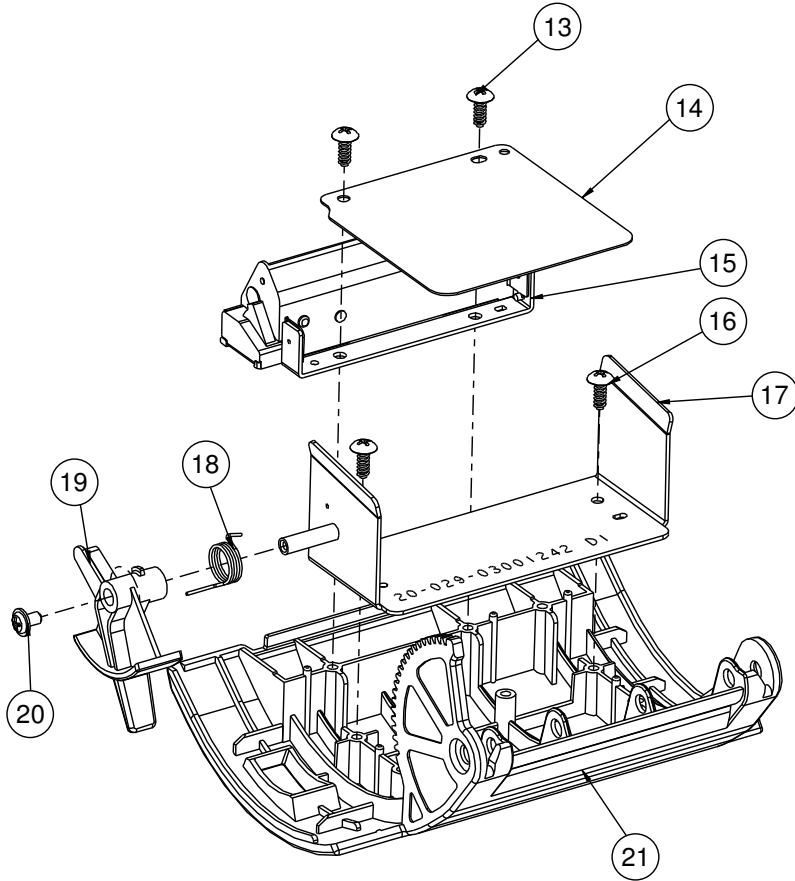
No.	Name	P/N No.	Qt'y
13	T3_L8_P_B	22-135-30008311	2
14	3" Mylar	90-056-02600165	1
15	3" Printer	52-701-00017003	1/2
16	T3_L8_P_B	22-135-30008311	2
17	PA3350_EJECTOR_HOLDER	20-029-03001242	1
18	PS3100-SPRING-FOR_EJECTOR	23-002-00001021	1
19	PA-3350-EJECTOR	30-019-09130242	1
20	M3_L5_W_Ni	22-242-30005311	1
21	PA-3350_P_DOOR	30-007-02130242	1

EXPLODED DIAGRAM FOR PA-3310 2" PRINTER



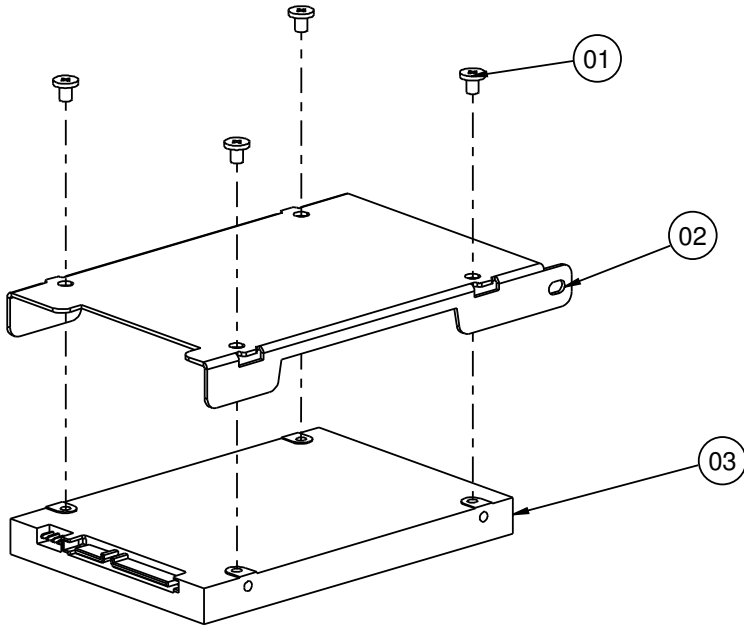
No.	Name	P/N No.	Qt'y
01	M2_L4_W_Ni	22-232-20004311	4
02	Printer Control PCB	See Order	1
03	PA-3350_PRINTER_HOLDER	20-029-03005242	1
04	2" Printer	52-701-00020003	1/2
05	M2_L4_I_Ni	22-272-20004011	1
06	Rotary Damper	30-022-09110000	1
07	M2_L4_I_Ni	22-272-20004011	2
08	M3_L5_W_Ni	22-242-30005311	2
09	PA3350-P_DOOR_SPRING_L	23-000-04000502	1
10	PA3350-P_DOOR_SPRING_R	23-000-03000502	1
11	PAPER_COVER_PIN	20-004-10011165	1
12	Printer Front_Assembly	--	1

EXPLODED DIAGRAM FOR PA-3310 2" PRINTER COVER



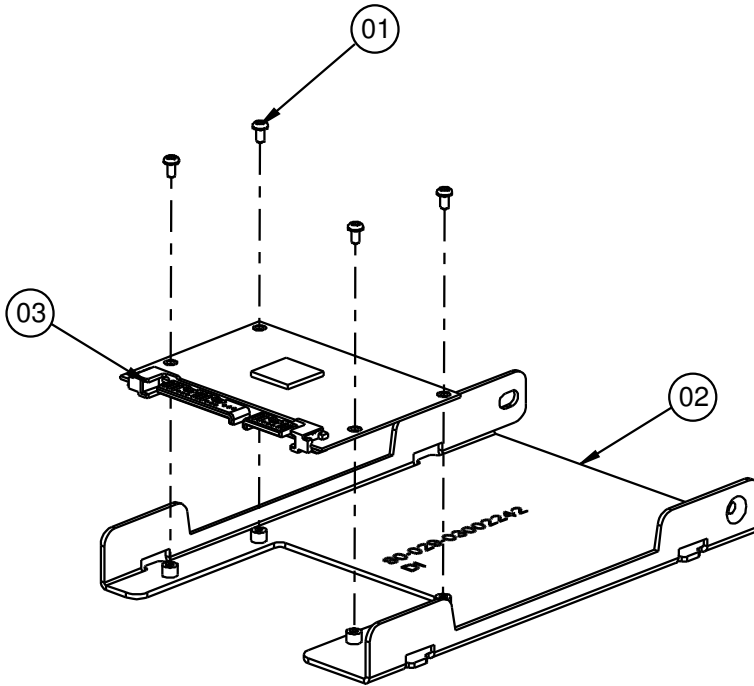
No.	Name	P/N No.	Qty
13	T3_L8_P_B	22-135-30008311	2
14	2" Mylar	90-056-02300165	1
15	2" Printer	52-701-00020003	1/2
16	T3_L8_P_B	22-135-30008311	2
17	PA3350_EJECTOR_HOLDER	20-029-03001242	1
18	PS3100-SPRING-FOR-EJECTOR	23-002-00001021	1
19	PA-3350-EJECTOR	30-019-09130242	1
20	M3_L5_W_Ni	22-242-30005311	1
21	PA-3350_P_DOOR	30-007-02130242	1

EXPLODED DIAGRAM FOR PA-3310 HDD MODULE



No.	Name	P/N No.	Qty
01	M3_L4_I_Ni	82-272-30004018	4
02	PA-3350_HDD_HOLDER	80-029-03001242	1
03	HDD	See Order	1

EXPLODED DIAGRAM FOR PA-3310 SSD MODULE



No.	Name	P/N No.	Qt'y
01	MI.6_L3	22-222-16003015	4
02	PA-3350_SSD_HOLDER	80-029-03002242	1
03	SSD	See Order	1