Line Thermal Printer
ESC/POS
Command Specifications

Revision 1.00

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Special Products Operating Division

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This document is the ESC/POS command specification manual.
Information contained herein applies to models with the following conditions.

- Line Thermal Printers
- Printer head: 203DPI
- Interface: Parallel/RS-232C
- Printing Width: 3 inch and 4 inch

< Applicable Models>
- 3 inch printers: TSP700 and TSP600
- 4 inch printers: TSP800 and TUP900

1. INTERFACE CONFIGURATION

1-1 RS-232 Serial Interface

1-1-1 Specifications (Conforming to RS-232)

Data transmission method	Serial
Synch method	Start-Stop synchronization method
Handshake	DTR/DSR/XON/XOFF
Signal level	MARK = -3v to -15v Logic '1'/OFF
	SPACEK = +3v to +15v Logic '0'/ON
Baud rates	2400, 4800, 9600, 19200, 38400 bps
Bit length	7, 8 bits
Parity	None, odd, even
Stop bit:	1 bit (Fixed)
Connector	D-SUB 25 (Male)/D-SUB 9 (Male)

Note: Handshake, bit length, baud rates and parity settings are set by the DIP switches.

1-1-2 Switching Between Online and Offline

This printer does not have a switch to go between online and offline. The following conditions are required to go offline.
• The time after initializing the mechanism when turning on the power or causing a reset by the interface until communication is possible
• When executing a self-test
• When the cover is open
• When printing has stopped because there is no paper
(When the roll paper end sensor detects that paper is out, or the roll paper near end sensor detects that paper is out using ESCc4, or paper is out when the print stop is enabled.)
• When waiting to switch at macro execution
• While there is a temporary error in the power voltage
• When there is an error

1-1-3 Signal Array and Explanations According to Interface Connector Pin

<Signal Array and Functions>

<table>
<tr><th>Pin No.</th><th>Signal Name</th><th>Signal Dir.</th><th>Function</th></tr>
<tr><td>1</td><td>FG</td><td>-</td><td>Frame ground</td></tr>
<tr><td>2</td><td>TXD</td><td>Output</td><td>Transmission Data</td></tr>
<tr><td>3</td><td>RXD</td><td>Input</td><td>Reception Data</td></tr>
<tr><td>4</td><td>RTS</td><td>Output</td><td>Same as DTR signal</td></tr>
<tr><td>6</td><td>DSR</td><td>Input</td><td>Signal indicating whether host can receive data.
The SPACE status indicates the host can receive data; the MARK status indicates that the host cannot receive data. When DTR/DSR control is selected, the status of this signal is checked to transmit data. (Excludes data transmissions using DLEEOT and GSa.)
When XON/XOFF control is selected, the status of this signal is not checked. This signal can be used to reset the printer according by switching the DIP switches.</td></tr>
<tr><td>7</td><td>SG</td><td>-</td><td>Signal ground</td></tr>
<tr><td>20</td><td>DTR</td><td>Output</td><td>(1) When DTR/DSR control is selected:
Indicates whether the printer is BUSY.
The SPACE status indicates the printer is READY; the MARK status indicates that the printer is BUSY.
The DIP switch settings change the conditions for the printer to be BUSY. (*1)
The following conditions are required to enter a BUSY (MARK) state.
<table><tr><th colspan="2" rowspan="2">Printer Status</th><th colspan="2">DIPSW Status (*1)</th></tr><tr><th>OFF</th><th>ON</th></tr><tr><td rowspan="6">OFF LINE</td><td>• During the period from when the power is turned on (including resetting using the interface) to when the printer is ready to receive data.</td><td>BUSY</td><td>BUSY</td></tr><tr><td>• When executing a self-test</td><td>BUSY</td><td>BUSY</td></tr><tr><td>• When the cover is open</td><td>-</td><td>BUSY</td></tr><tr><td>• When printing stopped because of paper out</td><td>-</td><td>BUSY</td></tr><tr><td>• When waiting to switch at macro execution</td><td>-</td><td>BUSY</td></tr><tr><td>• While there is a temporary error in the power</td><td>-</td><td>BUSY</td></tr><tr><td colspan="2">• When there is an error</td><td>-</td><td>BUSY</td></tr><tr><td colspan="2">• When reception buffer is full (*2)</td><td>BUSY</td><td>BUSY</td></tr></table>
(2) XON/XOFF control is selected:
Indicates whether the printer is connected normally and is ready to receive data from the host. A SPACE status indicate that the printer is connected normally and that data can be received. The SPACE status is always entered except for the following cases.
• The time after initializing the mechanism when turning on the power until communication is possible.
• While executing a self-test</td></tr>
<tr><td>25</td><td>INIT</td><td>Input</td><td>This signal can be used to reset the printer according by switching the DIP switches.</td></tr>
</table>

(*1) DIPSW Settings: Conditions for BUSY

ON = Reception buffer full or printer is offline (Default)

OFF = Reception buffer full

(*2) When the reception buffer empty region is 0 bytes, received data is ignored.

1-1-4 Timing for Transmitting XON/XOFF

When XON/XOFF control is selected, XON and XOFF are transmitted with the following timings.

The transmission timing varies according to the DIP switch settings.

XON code: <11> H

XOFF code: <13> H

For (3) below, XON is not transmitted when the reception buffer is full.

For (6) below, XOFF is not transmitted when the reception buffer is full.

<XON/XOFF Transmission Timing>

	Printer Status	DIPSW Status (*1)	
		OFF	ON
XON Transmission	(1) When online for the first time after turning the power on or a reset using the interface	Transmission	Transmission
	(2) When the buffer full status was cancelled for reception buffer	Transmission	Transmission
	(3) When shifting from offline to online	-	Transmission
	(4) When recovered from a recoverable error using a command	-	Transmission
XOFF Transmission	(5) When the reception buffer entered buffer full status	Transmission	Transmission
	(6) When shifting from online to offline	-	Transmission

(*1) DIPSW Settings: Conditions for BUSY

ON = Reception buffer full or printer is offline (Default)

OFF = Reception buffer full

1-1-5 Serial Interface Connection Example

• If the other connected party is DCE, be careful so that there is no status without a handshake (where data is flows) (DTE: Data Terminal Equipment; DCE: Data Circuit Terminating Equipment)

• When transmitting data to the printer, turn on the power to the printer and initialize first.

Host		Printer
TXD	———	RXD
DSR	———	DTR
CTS	———	RTS
RXD	———	TXD
DTR	———	DSR
F.G	———	F.G
S.G	———	S.G

1-1-6 Precautions When Switching the BUSY Conditions Using the DIP Switches

DIPSW Settings: Conditions for BUSY

ON = Reception buffer full or printer is offline (Default)

OFF = Reception buffer full

To set the busy conditions to reception buffer full (OFF) using the DIP switches, operators should be aware of the following points.

• Printing will stop but the printer will not enter a BUSY state when printing stops because of an error, the cover is open, paper is out when printing stops are enabled, or when paper feeds are executed using the paper feed switch.

• Depending on this setting, the printer status is monitor when there is a handshake with the printer, always by a GSa command or using the automatic transmission function of data using that command.

• When using DLEEOT, DLEENQ and DLEDC4, the reception buffer does not enter a buffer full status.

• Precautions on the host which cannot receive data transmissions when the printer is BUSY

DLEEOT, DLEENQ and DLEDC4 cannot be used when an error occurs when the printer has entered a BUSY state because the reception buffer is full.

• Precautions on the host which can receive data transmissions when the printer is BUSY

DLEEOT, DLEENQ and DLEDC4 are handled as bit image data when using the DLEEOT, DLEENQ and DLEDC4 partway through the bit image data when the reception buffer is full when transmitting bit image data. Also, it is possible to lose data when received while the reception buffer is full.

1-2 Bi-directional Parallel Interface (IEEE1284)

1-2-1 Compatibility Mode (Host – Printer Communications: Conforms to Centronix)

1. General Description

The Compatibility Mode is a mode that uses the Centronix interface as standard, which is widely in use.

2. Specifications

Data transmission method:	8 Bit Parallel
Synch method:	According to externally supplied nStrobe signal
Handshake:	According nAck signals and Busy signals
Signal level:	All signals are TTL compatible

3. Switching Between Online and Offline

This printer does not have a switch to go between online and offline. The following conditions are required to go offline.

• The time after initializing the mechanism when turning on the power or causing a reset by the interface until communication is possible

• When executing a self-test

• When the cover is open

• When the paper is out and printing has stopped (paper out selected by ESCc4)

• When waiting to switch at macro execution

• When errors occur

1-2-2 Reverse Mode (Printer to Host Communications)

Status data transfer from the printer to the host is performed in either Nibble or Byte Mode.

General Description

Data transmissions from asynch printers controlled by the host are regulated. Nibble Mode data transmissions use an existing control line to transmit data 4 bits (Nibble) at a time. The Byte Mode uses bidirectional communications to transfer 8 bits of data lines. In either case, communications are in half-duplex because it is not possible to execute both simultaneously with the Compatibility Mode.

1-2-3 Interface Connector Pin Arrangement for Each Mode

Pin	Source	Compatibility Mode	Nibble Mode	Byte Mode
1	Host	nStrobe	HostClk	HostClk
2	Host/Ptr	Data0 (LSB)	Data0 (LSB)	Data0 (LSB)
3	Host/Ptr	Data1	Data1	Data1
4	Host/Ptr	Data2	Data2	Data2
5	Host/Ptr	Data3	Data3	Data3
6	Host/Ptr	Data4	Data4	Data4
7	Host/Ptr	Data5	Data5	Data5
8	Host/Ptr	Data6	Data6	Data6
9	Host/Ptr	Data7 (MSB)	Data7 (MSB)	Data7 (MSB)
10	Printer	nAck	PtrClk	PtrClk
11	Printer	Busy	PtrBusy/Data3,7	PtrBusy
12	Printer	PError	AckDataReq/Data2,6	AckDataReq
13	Printer	Select	Xflag/Data1,5	Xflag
14	Host	NC	HostBusy	HostBusy
15		NC	ND	ND
16		Signal GND	Signal GND	Signal GND
17		Frame GND	Frame GND	Frame GND
18	Printer	+5 V	+5 V	+5 V
19 to 30		Twisted Pair Return	Twisted Pair Return	Twisted Pair Return
31	Host	nInit	nInit	nInit
32	Printer	nFault	nDataAvail/Data0,4	nDataAvail
33		EXTGND	ND	ND
34	Printer	NC	ND	ND
35	Printer	NC	ND	ND
36	Host	nSelectIn	1284-Active	1284-Active

NC: Not Connected ND: Not Defined

<Note>

• Initial 'n' of signal name indicates an 'L' active signal.

Bidirectional communications are not possible on hosts with even one of the above signal lines.

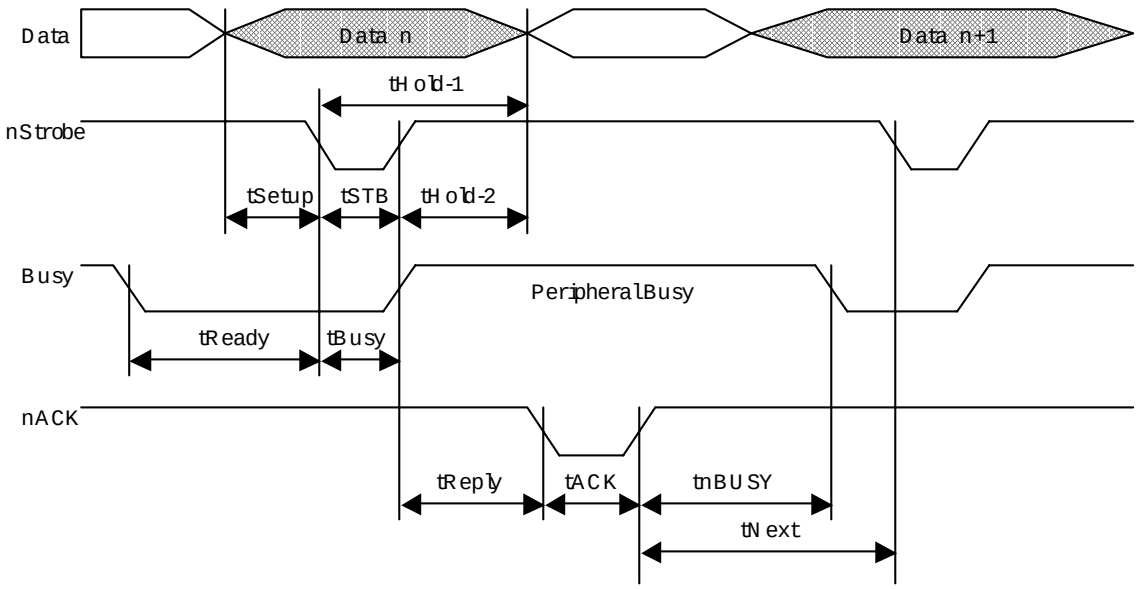
• Always use twisted pair lines for each signal line when using the interface and connect the return side to the signal ground level.

• All interface conditions use TTL levels as standard and must satisfy the following characteristics. Each signal rise and fall times must be a maximum of 0.5 µs.

• Data transmissions for which nAck signals or Busy signals are ignored are prohibited. When ignored, data can be lost.

• Use the shortest distance necessary for the interface cable.

1-2-4 Data Reception Timing (Compatibility Mode)



		Standards	
		Minimum [ns]	**Maximum [ns]**
Data Hold Time (host)	tHold-1	-	500
Data Hold Time (printer)	tHold-2	-	-
Data Setup Time	tSetup	-	500
STROBE Pulse Width	tSTB	-	500
READY Cycle Idle Time	tReady	-	-
BUSY Output Delay Time	tBUSY	0	500
Data Processing Time	tReply	0	∞
ACKNLG Pulse Width	tACK	1usec/9usec (*1)	-
BUSY Cancel Time	tnBUSY	0	∞
ACK Cycle Idle Time	tNext	-	0

(*1) Memory Switch Setting: ACK Pulse Width

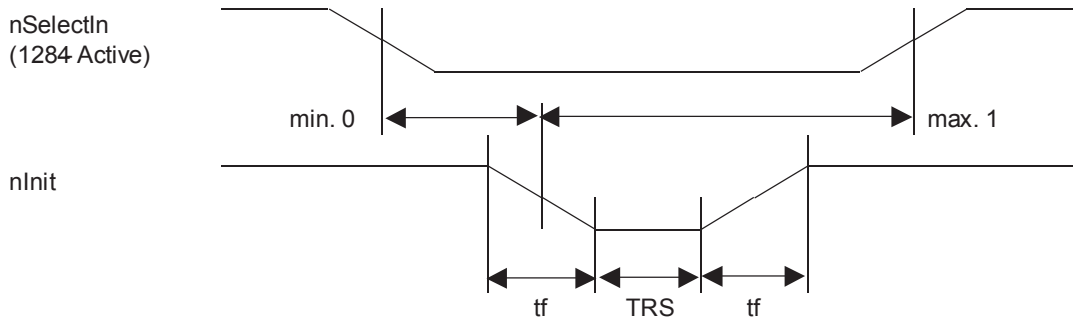
ON = 9usec

OFF = 1usec (Default)

1-2-5 Precautions When Resetting the Printer Using the Interface

When applying a printer reset using the interface (#31 pin nInit signal) in the Compatibility Mode, the following characteristics must be met.

Reset Minimum Pulse Width	TRS	50µsec (min)
Rise Time	tf	500nsec (max)
Fall Time	tr	500nsec (max)



1-2-6 Receiving Status from the Printer Using a Bidirectional Parallel Interface

It is possible to transmit the status from the printer using bidirectional communications functions according to the Nibble and Byte Mode which conform to IEEE1284 standards, when using a bidirectional parallel interface. When doing so, compared to RS-232 serial interface specifications, you must pay attention to the following points because the printer cannot insert real-time interrupts to the host.

• The transmission buffer size in the printer is 128 bytes. (Excluding ASB status) Because statuses that exceed this are discarded, create a receive status (Reverse Mode) on the host side so that status are not lost.

• When using ASB, it is preferred that the host side be in a receive waiting status (a reverse idle status). If that is not possible, put the host side into a Reverse Mode to constantly monitor the presence of data.

• When using ASB, ASB status is transmitted with priority over other statuses in the Reverse Mode. Also, ASB status that are accumulated without being sent from the last sent ASB status to the latest ASB status ate bundled into one ASB status and transmitted, and the latest ASB status is then transmitted after that.

Example: The following shows an ASB status in a normal (idled) state.

First Status		Second Status		Third Status		Fourth Status	
0000	1000	0000	0000	0000	0000	0000	0000

The following data is accumulated when a near end detection occurs, the cover is open and cover close is performed.

	First Status		Second Status		Third Status		Fourth Status		
1	0000	1000	0000	0000	0000	0011	0000	0000	Near End Detection
2	0010	1000	0000	0000	0000	0011	0000	0000	Cover Open
3	0000	1000	0000	0000	0000	0011	0000	0000	Cover Closed

Then, when the ASB status is received, the combination of actually transferred ASB is a total of 8 bytes: ASB (1 + 2 + 3) + the latest ASB (3).

	First Status		Second Status		Third Status		Fourth Status	
ASB (1 + 2 + 3)	0010	1000	0000	0000	0000	0011	0000	0000

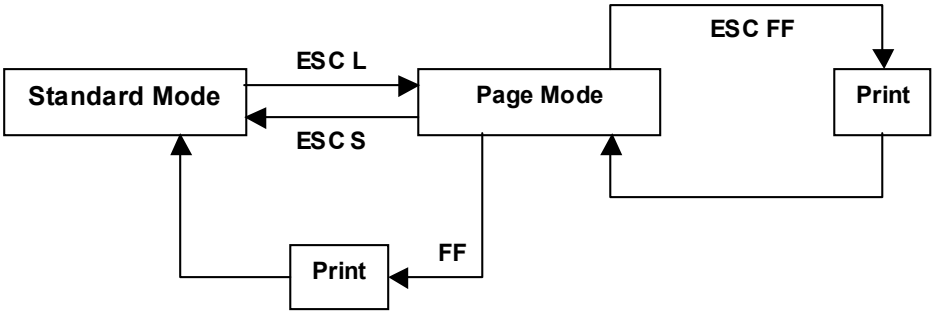
+

	First Status		Second Status		Third Status		Fourth Status	
Latest ASB (3)	0001	1000	0000	0000	0000	0011	0000	0000

2. EXPLANATIONS OF THE PAGE MODE

2-1 General Description

This printer has two print modes: The Standard Mode and the Page Mode. In the standard mode, the printer prints or performs a paper feed whenever it receives printing or paper feed instructions. With the Page mode, received printing or paper feed instructions are all performed on the print region in the specified memory, but the printer does not act. Then, when the ESCFF or FF command is executed, the data is expanded to that print region to print it in batch. Specifically, when printing or line feeding data of “ABCDEF” <LF>, the status mode prints “ABCDEF” and executes one line feed. However, with the page mode, “ABCDEF” is written to the specified print region on the memory and one line is moved in the memory position to write the next print data. The printer enters the page mode using ESCL. Subsequently received commands are all processed using the page mode. By executing ESCFF, data that is received is printed in batch. By executing FF, data that is received is printed in batch, then the printer recovers to the standard mode. It is possible to return to the standard mode without printing print data in the page mode using ESCS. However, that print data is cleared.



2-2 Settings Using Commands in Standard Mode and Page Mode

• The values set using each command are common settings for both the standard mode and the page mode, but the settings of the following commands are set independently for each. → ESCSP,ESC2,ESC3,FSS

• In the standard mode, the maximum number of dots are set for the X direction, but in the page mode, the Y direction (the X direction when not rotated) when rotated in either the 90 degree direction or the 270 degree direction becomes larger. For details see the print region setting command (ESCW) for the page mode.

2-3 Expanding Print Data to the Print Region

The following are performed when expanding print data to the print region.

(1) The print region is set by ESCW, ESCW sets the left side as the print region origin (X0, y0) at the point all operations for previous printings and paper feeds are completed received by the printer. The square shape formed by the two sides of the dx pitch in the X direction (horizontal direction) including the origin and the dy pitch in the Y direction (vertical direction) from the origin (x0, y0) is the print region (When ESCW is not set, the initial value is the print region).

(2) If the print region is set by ESCW and print direction is set by ESCT, the point A in the figure 2.3.1 is the initial value and print data expands to the print region when the printer receives the print data. In the case of characters, this starting point is the base line. Download bit images and bar codes are expanded for the top of the base line using the lower left point of the image data as the base line (Fig. 2.3.2 Point B) However, the HRI characters that come below the bar codes are printed below the base line. When trying to expand characters that are taller than standard characters (double-tall characters) or download bit images, the portion that is beyond the height of standard characters is not printed.

(3) If print data is outside of the print region (including the space right of the character) before receiving the commands (LF, ESCJ, etc.) accompanying a line feed, a line feed is automatically performed in the print region and the expanding position of the print data is moved one line and the next expansion position becomes the head of the line. The line feed amount is the line feed amount set by ESC2 and ESC3.

(4) The initial value of the line feed amount when using basic calculated pitch correction of 180 DPI is 4.23 mm (1/6 inch). This is equivalent to 33 dots. Therefore, when using expanded characters that are beyond the double-tall size in the vertical direction in the next line of print data, download bit images that are larger than two lines or bar codes that are taller than characters, the line amount will be insufficient and the upper dots of the characters in the next print data will overlap, so the amount of line feed must be increased. The line feed amount of the first line in the example below must be more than 28 dots (Fig. 3.12.4).

<Ex.> When printing a download bit image for 6 bytes in the vertical direction:

(Vertical dot count (8 x 6) – Starting line feed amount (20)) x Basic calculated pitch conversion in the vertical direction (360/180) = 56

Therefore, the line feed must be 56 pitches (28 dots) in excess.

ESCW, xL, xH, yL, yH, dxL, dxH, dyL, dyH
ESCTn
ESC354 ← Additional line feed amount
LF
GS/1
ESC2 ← Returns to a line feed amount of 4.23 mm (1/6 inch)

Note: The basic calculated pitch is 1/180 horizontally and 1/360 vertically with default, so a differences is generated with the position specification according to the print direction. By setting the basic calculated pitch in the vertical direction to 1/180 using a command (GSP), a difference will not be generated by print direction.

STAR The page print region setting, print data expansion position, line feed, position movement amount in the page mode are affected by the basic calculated pitch correction using the DIP switches.
For details, see the command details for GSP (basic calculated pitch specification) and ESCW (print region setting command).

Fig. 2.3.1 Character Data Expansion Position

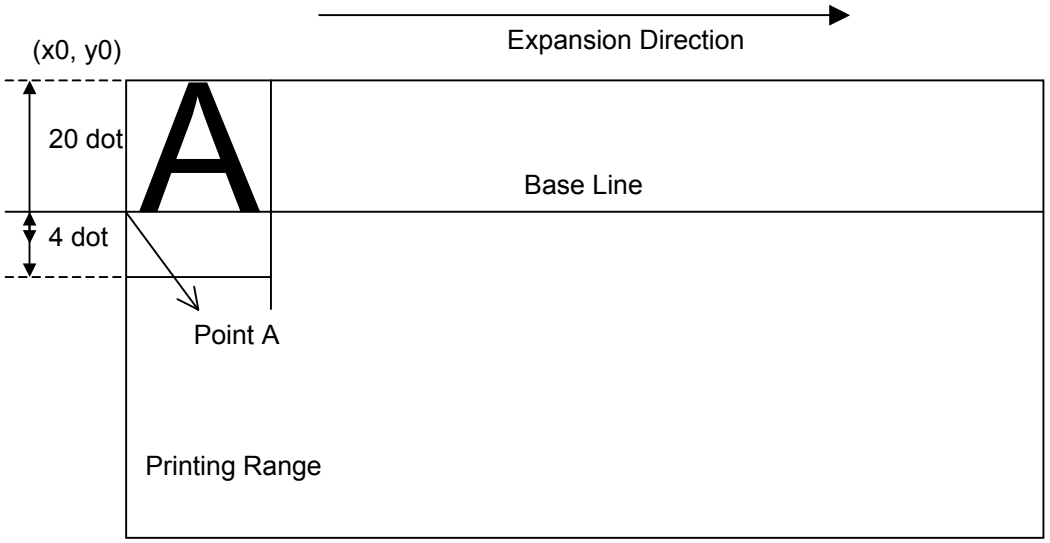


Fig. 2.3.2 Character Data Expansion Position

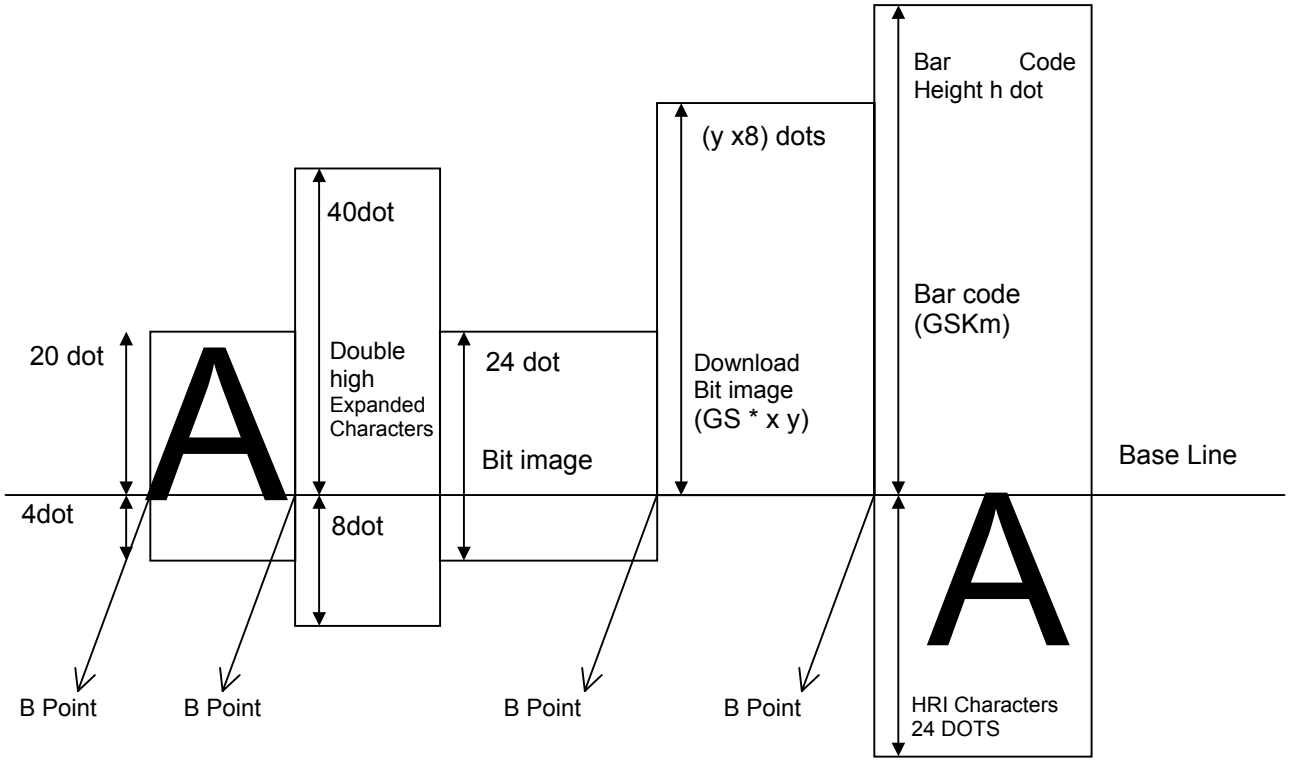
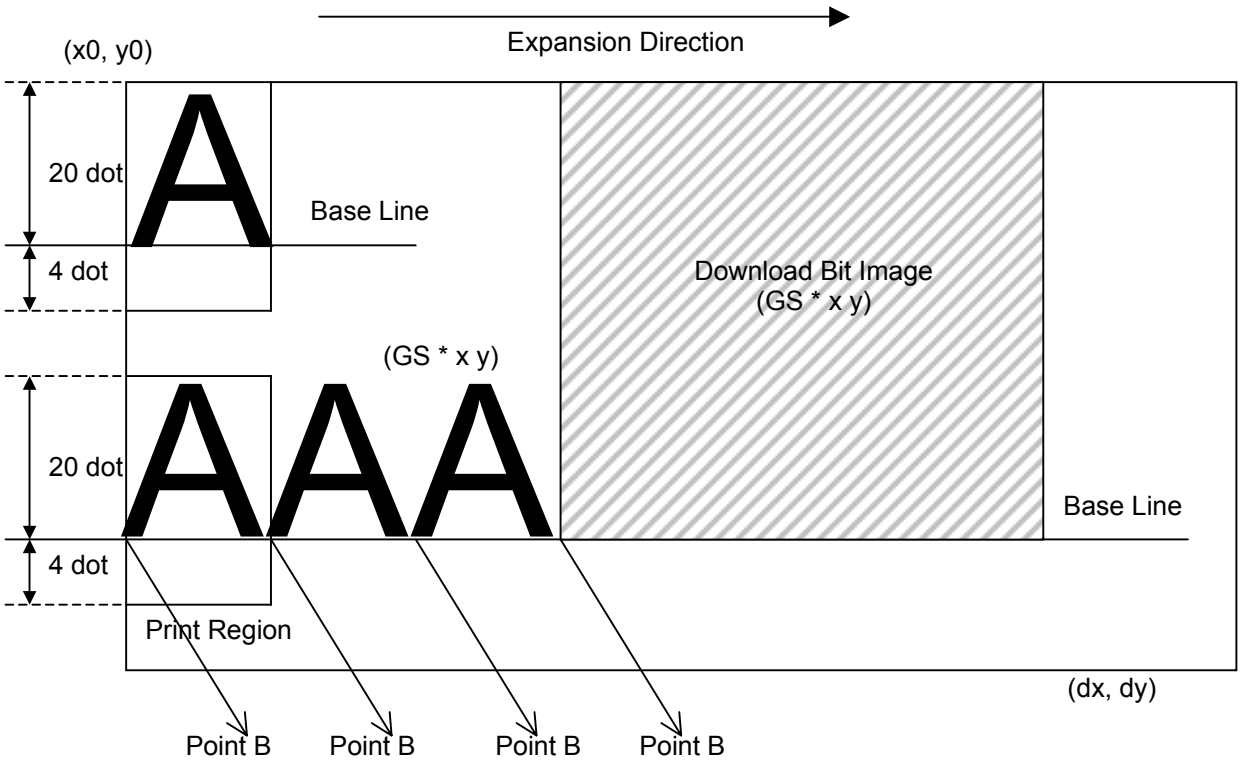


Fig. 2.3.3 Download Bit Image Expansion Position



3. COMMAND FUNCTION LIST

○ •Valid; (L): Effective only at the top of the line; (S): Only setting effective; (D): Effective only when there is no data in print buffer

Standard Commands

Commands	Name	Command Class		Std Mode	Page Mode	GS P Effect
		Exe.	Set			
HT	Horizontal tab	○		○	○	
LF	Line feed	○		○	○	
FF	Print and recover to page mode	○		Ignored	○	
CR	Print and carriage return	○		○	○	
CAN	Cancel print data in page mode	○		Ignored	○	
DLE EOT	Real-time status transmission	○		○	○	
DLE ENQ	Real-time request to printer	○		○	○	
DLE DC4	Real-time output of specified pulse	○		○	○	
ESC FF	Print data in page mode	○		Ignored	○	
ESC SP	Set character right space amount		○	○	○	○
ESC !	Batch specify print mode		○	○	○	
ESC $	Specify absolute position	○		○	○	○
ESC %	Specify/cancel download character set		○	○	○	
ESC &	Define download characters		○	○	○	
ESC *	Specify bit image mode	○		○	○	
ESC -	Specify/cancels underline mode		○	○	○	
ESC 2	Set default line spacing		○	○	○	
ESC 3	Set line feed amount		○	○	○	○
ESC =	Select peripheral device		○	○	○	
ESC ?	Delete download characters		○	○	○	
ESC @	Initialize printer	○	○	○	○	
ESC D	Set horizontal tab position		○	○	○	
ESC E	Specify/cancel emphasized printing		○	○	○	
ESC G	Specify/cancel double printing		○	○	○	
ESC J	Print and Paper Feed	○		○	○	○
ESC L	Select page mode	○		(L)	Ignored	
ESC M	Select character font			○	○	
ESC R	Select international characters		○	○	○	
ESC S	Select standard mode	○		Ignored	○	
ESC T	Select character print direction in page mode		○	(S)	○	
ESC V	Specify/cancel char. 90 deg. clockwise rotation		○	○	(S)	
ESC W	Set print region in page mode		○	(S)	○	○
ESC \	Specify relative position	○		○	○	○
ESC a	Position alignment		○	(L)	(S)	
ESC c 3	Select paper out sensor to enable at paper out signal output		○	○	○	
ESC c 4	Select paper out sensor to enable at printing stop		○	○	○	
ESC c 5	Enable/disable panel switches		○	○	○	
ESC d	Print and feed paper n lines	○		○	○	
ESC p	Specify pulse	○		○	○	
ESC t	Select character code table		○	○	○	
ESC {	Specify/cancel upside-down characters		○	(L)	(S)	
FS g 1	Write data to user NV memory		○	○	Invalid	
FS g 2	Read user NV memory data	○		○	○	

Commands	Name	Command Class		Std Mode	Page Mode	GS P Effect
		Exe.	Set.			
FS p	Print NV bit image	○		○	Invalid	
FS q	Define NV bit image		○	(L)	Invalid	
GS !	Select character size		○	○	○	
GS $	Specify absolute position for character vertical direction in page mode	○		Ignored	○	○
GS *	Define download bit images		○	○	○	
GS (A	Test print	○		○	Ignored	
GS (K	Set print density		○	○	○	
GS (N	Select 2 color printing		○	○	○	
GS /	Print download bit images	○		(D)	○	
GS :	Start/end macro definition	○	○	○	○	
GS B	Specify/cancel white/black inverted printing		○	○	○	
GS C 0	Set counter print mode		○	○	○	
GS C 1	Set Counter Mode (A)		○	○	○	
GS C 2	Set counter value		○	○	○	
GS C ;	Set Counter Mode (B)		○	○	○	
GS E	Set print speed		○	○	○	
GS H	Select HRI character print position		○	○	○	
GS I	Send Printer ID	○		○	○	
GS L	Set left margin		○	(L)	(S)	○
GS P	Set basic calculated pitch		○	○	○	
GS T	Move to top of line	○		○	Ignored	
GS V	Cut paper	○		(L)	○	○
GS W	Set print region width		○	(L)	(S)	○
GS \	Specify relative position for character vertical direction in page mode	○		Ignored	○	○
GS ^	Execute macro	○		○	○	
GS a	Enable/disable transmission of automatic status	○	○	○	○	
GS b	Specify/cancel smoothing		○	○	○	
GS c	Print counter	○		○	○	
GS f	Select HRI character font		○	○	○	
GS h	Set bar code height		○	○	○	
GS k	Print bar code	○		(D)	○	
GS r	Transmission of status	○		○	○	
GS v 0	Print raster bit images	○		(D)	Invalid	
GS w	Set bar code horizontal size		○	○	○	

Kanji Control Commands (For Japanese, Chinese and Taiwanese language specifications only)

Commands	Name	Command Class		Std Mode	Page Mode	GS P Effect
		Exe.	Set.			
FS !	Batch specify Chinese character print mode		○	○	○	
FS &	Specify Chinese character mode		○	○	○	
FS -	Specify/cancel Chinese character underline		○	○	○	
FS .	Cancel Chinese character mode		○	○	○	
FS 2	Define external character		○	○	○	
FS C	Select Chinese character code type		○	○	○	
FS S	Set Chinese character space amount		○	○	○	○
FS W	Specify/cancel double-tall, double wide Chinese characters		○	○	○	

ESC/POS Black Mark Related Commands

Commands	Name	Command Class		Std Mode	Page Mode	GS P Effect
		Exe.	Set.			
FF	Print and recover to page mode + TOF and Cut	○		○	○	
DLE ENQ	Real-time request to printer	○		○	○	
GS FF	Move to BM detection position	○		○	○	
GS (F	Adjust BM detection position		○	○	○	○
GS (M n=1	Save black mark adjustment amount	○		○	○	
GS (M n=2	Load black mark adjustment amount	○		○	○	
GS (M n=3	Set auto-load of black mark adjustment amount		○	○	○	
GS <	Mechanically initialize printer	○		○	○	
GS V	Cut paper	○		(L)	○	○

STAR Original Commands

Commands	Name	Command Class		Std Mode	Page Mode	GS P Effect
		Exe.	Set.			
ESC GS =	Write data to a blank code page		○	○	○	
ESC GS t	Select character code table		○	○	○	
ESC GS #m	Memory Switch Settings	○	○	○	○	
ESC SYN 0	Execute presenter paper recovery	○		○	○	
ESC SYN 1	Set presenter paper recovery time		○	○	○	
ESC SYN 3	Get presenter counter		○	○	○	
ESC SYN 4	Initialize presenter counter		○	○	○	

STAR Original Mark Commands

Commands	Name	Command Class		Std Mode	Page Mode	GS P Effect
		Exe.	Set.			
ESC GS * 0	Print mark	○		(D)	Ignored	
ESC GS *1	Set mark height and line feed		○	○	○	
ESC GS *2	Set mark color and horizontal width		○	○	○	
ESC GS *W	Register mark format to non-volatile memory	○	○	○	○	
ESC GS *C	Initialize mark format in the non-volatile memory	○	○	○	○	

STAR Original Auto Logo Commands

Commands	Name	Command Class		Std Mode	Page Mode	GS P Effect
		Exe.	Set.			
ESC GS /W	Register Auto Logo setting to non-volatile memory	○	○	○	○	
ESC GS /C	Initialize Auto Logo setting to non-volatile memory	○	○	○	○	
ESC GS /1	Auto Logo function on/off setting		○	○	○	
ESC GS /2	Set command character		○	○	○	
ESC GS /3	Set user macro 1		○	○	○	
ESC GS /4	Set user macro 2		○	○	○	
ESC GS /5	Set command character switching method		○	○	○	
ESC GS /6	Set partial cut before Auto Logo printing		○	○	○	

4. COMMAND DETAILS

4-1 Explanation of Terms

• Reception buffer
The buffer for storing data (reception data) received from the host, as it is called the reception buffer.
Reception data is temporarily stored in the reception buffer, then processed sequentially.

• Print buffer
The buffer for storing image data for printing is called the print buffer.

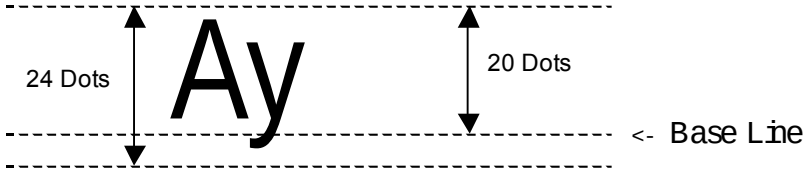
• Print buffer full
The state in which the buffer has no more space available is called print buffer full. When the print buffer is full in standard mode, data in the print buffer is printed and a line feed is performed when new print data is processed. This is the same as a LF. When the print buffer is full in the page mode, the printer move the print position to the head of the next line then starts with the new print data.

• Top of line
The top of line is a state that satisfies the following conditions.
1. There is currently no print data in the print buffer.
2. There is no skipped portion using HT
3. A print position has not been specified using ESC$, and ESC \

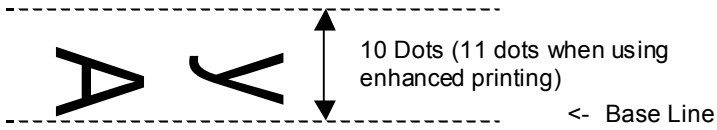
• Printable region
This is the maximum printable area with the printer's specifications.

• Print region
This is the printing area specified by a command. (Print region ≦ printable region)

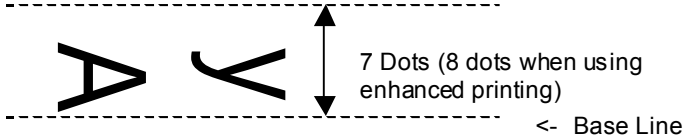
• ANK character base line
1. Normal direction characters FONT-A/FONT-B (Standard Mode/Page Mode)



2. Rotated characters FONT-A (Standard Mode)

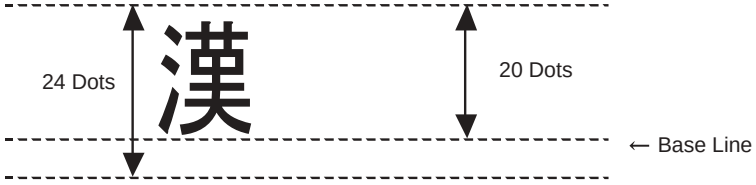


3. Rotated characters FONT-B (Standard Mod

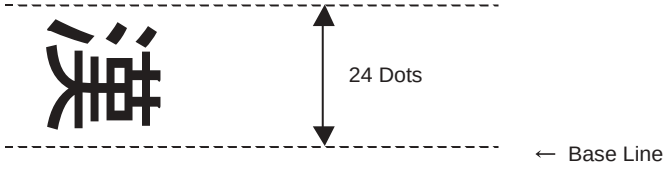


• Chinese character base line

1. Normal direction character (Standard Mode/Page Mode)



2. Rotated characters (Standard Mode)



4-2 Exception Processing

1. Undefined codes
   Codes from <00>H to <1F>H are targeted. When codes not defined as commands in this region are received, they are discarded.

(Ex.) If processing the data string of <30>H<31>H<03>H<32>H<0A>H<33>H, the printer will discard <03>H as an undefined code.

2. Undefined commands
   When data continuing the codes of ESC, FS, GS, DLE are codes not defined as commands, ESC, FS,GS and subsequent codes are discarded.

(Ex.) If processing the data string of <30>H<1B>H<22>H<31>H<32>H, the printer will read and discard <1B>H<22>H as an undefined command.

3. Settings outside of the defined area
   Processing values outside of the defined area in commands accompanying arguments, those commands are ignored and the preset values are unchanged. The processing of commands is terminated at the point values outside of the defined region are processed in arguments having a plurality of commands.

(Ex.) If processing the data string of <1B>H<52>H<15>H, the printer will discard the data string of <1B>H<52>H<15>H because although <1B>H<52>H is defined as a commands (ESC R), the argument <15>H is outside of the definition. Therefore, the international character set that is already set experiences no change.

4. Real-time Commands
   Real-time commands are stored in the reception buffer.

4-3 Command Details

4-3-1 Standard Commands

HT

Name	Horizontal tab
Code	ASCII HT
	Hex. 09
	Decimal 9
Function	Moves print position to next horizontal tab position.
Details	• This command is ignored if the next tab is not set.
	• If the next tab position exceeds the print region, the print position is moved to [print region + 1].
	• The horizontal tab position is set by ESC D (Set/cancel horizontal tab position).
	• When the print position is at the [print region + 1] position and this command is received, the current line buffer full is printed and a horizontal tab is executed from the top of the next line.
	• The initial value of the horizontal tab position is every 8 characters of Font A (the 9^{th}, 17^{th}, 25^{th} positions, etc.)
Reference	ESC D

LF

Name	Line feed	
Code	ASCII	LF
	Hex.	0A
	Decimal	10
Function	Prints the data in the print buffer and performs a line feed based on the set line feed amount.	
Details	After execution, makes the top of the line the next print starting position.	
STAR	When the setting for the line feed amount is smaller than the print data height:	
	a. If there is no print data, a line feed operation is executed according to the line feed amount.	
	b. If there is print data, a line feed operation is executed for the height of the print data.	
Reference	See ESC2, ESC3, Appendix-1	

FF

Name	Print and recover to page mode
Code	ASCII FF
	Hex. 0C
	Decimal 12
Function	Prints all buffered data to the print region collectively, then recovers to the standard mode.
Details	• All buffer data is deleted after printing.
	• The print area set by ESC W (Set print region in page mode) is reset to the default setting.
	• No paper cut is executed.
	• Sets the print position to the beginning of the next line after execution.
	• This command is enabled only in page mode.
Reference	ESC FF, ESC L, ESC S

CR

Name	Print and carriage return
Code	ASCII CR
	Hex. 0D
	Decimal 13
Function	• When an automatic line feed is enabled, this command functions in the same way as LF (print and line feed). When the automatic line feed is disabled, this command is ignored.
Details	• This command is ignored with serial interface models.
	• The operations of this command are selected by the memory switch <CR> code: Ignore/same as <LF> for parallel interface models.
	• Sets the print position to the beginning of the next line after execution.
Reference	LF

CAN

Name	Cancel print data in page mode
Code	ASCII CAN
	Hex. 18
	Decimal 24
Function	Deletes all print data in the currently set print region in page mode.
Details	• This command is enabled only in page mode.
	• Portions included in the currently set print region are also deleted, even if previously set print region data.
Reference	ESC L, ESC W

DLE EOT n

Name	Real-time status transmission
Code	ASCII DLE EOT n
	Hex. 10 04 n
	Decimal 16 4 n
Defined Region	1. Specifications $1 \leqq n \leqq 4$
	2. Specifications $1 \leqq n \leqq 5$
Function	Transmits the status specified by n in real-time.
	n = 1: Transmit printer status
	n = 2: Transmit offline cause status
	n = 3: Transmit error cause status
	n = 4: Transmit continuous paper detector status
	n = 5: Transmit presenter paper detector status
Details	• The printer transmits the present status.
	• Each status is represented by one-byte of data.
	• The printer transmits statuses without confirming whether the host computer can receive data.
	• This command is executed even when the printer is offline, the reception buffer is full, or there is an error status.
	• The printer executes this command upon reception.
	• This command is executed even when the printer is offline, the reception buffer is full, or there is an error status on serial interface models.
	• This command cannot be executed when the printer is busy on parallel interface models. The printer will not enter a BUSY status when offline or when there is an error when BUSY condition of reception buffer full, offline/reception buffer full is handled as a reception buffer full in the DIP switch settings.
	• When ASB is enabled using the GS a (Enable/disable auto status transmission) command, the status transmitted by this command and the ASB status must be differentiated. See Appendix-2 for details on how to identify.
	• This command is enabled even when the printer specification is disabled by ESC = (select peripheral devices).
	• See Appendix-2 for details on statuses.

Notes: **• Operators must use caution for other commands when the data string of <10>H<04>H<*n*> ($1 \leqq n \leqq 4$) is received because it operates in the same manner as this command. Example: In ESC * m n_L n_H [d1...dk], d1 = <10>H, d2 = <04>H, d3 = <01>H**

• Do not use this command to interrupt code strings of other commands that consist of 2 or more codes.

Example: If you attempt to transmit DLE EOT 3 up to transmitting ESC3 by trying to transmit ESC 3 *n* from the host, it is processed as ESC 3 <10>H. Operators must use caution.

Reference DLE ENQ, GS a, GS r, Appendix-2

DLE ENQ n

Name	Real-time request to printer			
Code	ASCII	DLE	ENQ	n
	Hex.	10	05	n
	Decimal	16	5	n

Defined Region: $1 \leqq n \leqq 2$

Function: Responds to requests n specifications from the host in real-time. n specifications are below.

n = 1: Recover from the error and start printing from the line where the error occurred.

n = 2: Recover from error after clearing the reception buffer and print buffer.

Details:

- This command is enabled even when the printer specification is disabled by ESC = (select peripheral devices).
- This command is enabled only when an auto-cutter error occurs.
- This command is processed upon reception.
- This command is executed even when the printer is offline, the reception buffer is full, or there is an error status on serial interface models.
- This command cannot be executed when the printer is busy on parallel interface models. The printer will not enter a BUSY status when offline or when there is an error when BUSY condition of reception buffer full, offline/reception buffer full is handled as a reception buffer full in the DIP switch settings.
- The printer retains the settings by ESC !, ESC 3, that were in effect when an error occurred even when DLE ENQ 2 is executed. The printer is initialized completely using this command and ESC @.

Notes:

• Operators must use caution for other commands when the data string of <10>H<05>H<*n*> ($1 \leqq n \leqq 2$) is received because it operates in the same manner as this command.

Example: In ESC * m n_L n_H [d]k; d1 = <10>H; d2 = <05>H; d3 = <01>H

• Do not use this command to interrupt code strings of other commands that consist of 2 or more codes.

Example: If you attempt to transmit DLE EBQ 2 up to transmitting ESC3 by trying to transmit ESC 3 n from the host, it is processed as ESC 3 10H. Operators must use caution.

STAR:

- Auto-cutter error specifications vary according to model, so for models for which there are non-recoverable auto-cutter errors, three byes of this command are ignored. See Appendix-2 for details on auto-cutter error specifications for model types.
- The black mark error is canceled and the printer feeds paper to the top of form position (black mark position) when this command is received during a black mark error. Paper is cut according to the memory switch setting (paper position, cover close setting).
- Models connected to a presenter ignore this command.
- When this command is set to n = 2, the printer is reset.

Reference: DLE EOT, Appendix-2

DLE DC4 n m t

Name	Real-time output of specified pulse					
Code	ASCII	DLE	DC4	n	m	t
	Hex.	10	14	n	m	t
	Decimal	16	20	n	m	t

Defined Region

n = 1

m = 0,1

$1 \leq t \leq 8$

Function

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.

Details

- This command is ignored if the printer experiences an error while processing this command.
- This command is ignored while outputting the pulse (while executing either ESCp or DEL DC4) to the connector pin while processing this command.
- This command is processed upon reception.
- This command is executed even when the printer is offline, the reception buffer is full, or there is an error status on serial interface models.
- This command cannot be executed when the printer is busy on parallel interface models. The printer will not enter a BUSY status when offline or when there is an error when BUSY condition of reception buffer full, offline/reception buffer full is handled as a reception buffer full in the DIP switch settings.
- This command is enabled even when the printer specification is disabled by ESC = (select peripheral devices).

Notes:

• Operators must use caution for other commands when a data string that is the same as this command is received because it operates in the same manner as this command.

• Do not use this command to interrupt code strings of other commands that consist of 2 or more codes.

STAR

Printing and drawer drive cannot be performed simultaneously. Therefore, this command is processed when data has been read out from the data buffer. If the printer is printing, this waits for the printing to end to drive the drawer, so real-time operation is not possible using the reception buffer status.

Reference

ESC p

ESC FF

Name	Print data in page mode
Code	ASCII ESC FF
	Hex. 1B 0C
	Decimal 27 12
Function	Prints all buffered data in the print area collectively in page mode.
Details	• This command is enabled only in page mode.
	• Holds the following information after printing.
	a. Expanded data
	b. Character print direction selection in page mode (ESCT)
	c. Set print region (ESCW) in the page mode.
	d. Character expansion position
Reference	FF, ESCL, ESCS

ESC SP n

Name	Set character right space amount
Code	ASCII ESC SP n Hex. 1B 20 n Decimal 27 32 n
Defined Region	0 ≦ n ≦ 255
Initial Value	n = 0
Function	Sets the right space amount for the character to [n x basic calculated pitch].
Details	• If the character horizontal direction magnification ratio is more than 2, the right space amount is also enlarged accordingly. • This command does not affect Chinese characters. • Right space amounts can be set independently for both the standard and page modes. • The basic calculated pitch is set by GSP (Set basic calculated pitch). Also, after setting the right space amount, it is not affected even if the basic calculated pitch is changed. • If the calculation results in fractions, the pitch is corrected to a minimal mechanical pitch and the rest is discarded. • In standard mode, the basic calculated pitch (x) for the horizontal direction is used. • In page mode, the basic calculated pitch that is used according to the starting point varies. a. When the starting point is specified to be upper left or lower right by the ESC T command (Character print direction selection in page mode), the basic calculated pitch (x) for the horizontal direction is used. b. When the starting point is specified to be upper right or lower left by the ESC T command (Character print direction selection in page mode), the basic calculated pitch (y) for the horizontal direction is used. • The maximum value that can be set for the right space amount is approximately 35.983 mm (or 255/180 inch). Specifications that exceed the maximum value are rounded off to that value.
Reference	GSP

ESC ! n

Name Batch specify print mode

Code

ASCII	ESC	!	n
Hex.	1B	21	n
Decimal	27	33	n

Defined Region $0 \leqq n \leqq 255$

Initial Value n = 0

Function Specifies batch print mode

Bit	Function	"0"	"1"
7	Underline	OFF	ON
6	Undefined	--	--
5	Double wide expanded	OFF	ON
4	Double tall expanded	OFF	ON
3	Emphasized printing .	OFF	ON
2	Undefined		--
1	Undefined	--	--
0	Character Fonts	Font-A	Font-B

Details

- Quadruple-size characters are printed by specifying both double-tall (bit 4 = 1) and double-wide (bit 5 = 1) modes.
- An underline is applied to the entire character width, including the ESC SP (character right space amount). However, underlines are not applied to portions that have been skipped using HT (horizontal tab) or ESC V (character 90 degree rotation).
- The thickness of the underline is set by ESC - (specify/cancel underlines) regardless of the character.
- The base line for characters is the same when there are characters having different vertical direction ratios in the same line.
- The setting of the last received command is effective even when emphasized printing is executed by the ESC E (specify/cancel emphasized printing) command.
- The setting of the last received command is effective even when underlines are executed by the (ESC -) Specify/cancel underline command.
- The setting of the last received command is effective even when character size is executed by the GS! command.
- Emphasized printing (bit 3) is effective for ANK and Chinese characters. Other printing modes are effective only on ANK characters. • Specifications using this command are ignored in HRI characters.

STAR The following are the font configurations on STAR printers.

Character Fonts	Horizontal Dots x Vertical Dots
Font A	12 x 24 Dots
Font B	9 x 24 Dots
Chinese Character Fonts	24 x 24 Dots

Reference ESC_, ESC E, GS !

ESC $ nL nH

Name Specify absolute position

Code	ASCII	ESC	$	nL	nH
	Hex.	1B	24	nL	nH
	Decimal	27	36	nL	nH

Defined Region $0 \leqq nL \leqq 255$

$0 \leqq nH \leqq 255$

Function Specifies the next printing starting position using an absolute position based on the left margin position. The next printing starting position is the position specified by [(nL+nH×256) × basic calculated pitch] from the left margin position.

Details
- Specifications exceeding the print range are ignored.
- The basic calculated pitch is set by GSP (Set basic calculated pitch).
- If the calculation results in fractions, the pitch is corrected to a minimal mechanical pitch and the rest is discarded.
- In standard mode, the basic calculated pitch (x) for the horizontal direction is used.
- In page mode, the basic calculated pitch that is used according to the starting point varies.

a. When the starting point is specified to be upper left or lower right by the ESC T command (Character print direction selection in page mode), the basic calculated pitch (x) for the horizontal direction is used.

b. When the starting point is specified to be upper right or lower left by the ESC T command (Character print direction selection in page mode), the basic calculated pitch (y) for the horizontal direction is used.

STAR Top of line does not exist when this command is used to specify anything other than the left margin position. The top of the line is maintained only when the same position as the left margin position is specified.

Reference ESC \ , GS $, GS \ , GS P

ESC % n

Name	Specify/cancel download character set
Code	ASCII ESC % n Hex. 1B 25 n Decimal 27 37 n
Defined Region	0 ≦ n ≦ 255
Initial Value	n = 0
Function	Specifies or cancels the download character set. • When n = <*******0>B, the download character set is cancelled. • When n = <*******1>B, the download character set is specified.
Details	• n is effective only when it is the least significant bit. • When the download character set is cancelled, the internal character set is automatically specified.
STAR	Because ESC& (define download characters) and GS* (define download bit images) are used in the same region, they cannot both be defined simultaneously. a. When download characters are defined, previously defined download bit images are cleared. b. Conversely, when download bit images are defined, previously defined download characters are cleared and the definition returns to same the internal character set.
Reference	ESC &, ESC ?

ESC& yc1c2 [x1d1...d (y x x1)] ... [axd1...d (yxax)]

Name	Define download characters				
Code	ASCII	ESC	&	y	c1c2 [x1 d1 ... d (yX x1)] ... [a xd1 ... d (y× ax)]
	Hex.	1B	26	y	c1c2 [x1 d1 ... d (yX x1)] ... [a xd 1 ... d (y×ax)]
	Decimal	27	38	y	c1c2 [x1 d1 ... d (yX x1)] ... [a xd 1 ... d (y×ax)]

Defined Region

y = 3

32 ≦ c1 ≦ c2 ≦ 126

0 ≦ x ≦ 12 (Font A), 0 ≦ x ≦ 9 (Font B)

0 ≦ d1....d (y×ax) ≦ 255

Initial Value

Same pattern as internal character set

Function

Defines the download characters to the specified character code.

- y specifies the number of bytes in the vertical direction.
- c1 specifies the starting character code for the definition; c2 specifies the final character code.
- x specifies the number of dots in the horizontal direction for the definition.

Details

- The definable character code range is from ASCII code <20>H to <7E>H.
- It is possible to define multiple characters for consecutive character codes with one definition. If only one character is desired, use c1 = c2.
- d is the dot data for the characters. It indicates the horizontal direction x dot pattern from the left side. If x does not meet the number of dots configuring the character, any remaining dots on the right side are blank.
- The data to define download characters is (y x x) bytes.
- Bits that correspond to the dots to print are 1, and the bits that correspond to the dots that are not printed are 0 in the definition data.
- This command can define different download characters for each font. To select a font, use ESC M or ESC !.
- ESC & (define download characters) and GS * (define download bit images) cannot both be defined simultaneously.

a. When download characters are defined, previously defined download bit images are cleared.

b. Conversely, when download bit images are defined, previously defined download characters are cleared and the definition returns to same the internal character set.

- Defined download characters are cleared under the following executions.

a. When the printer is initialized (ESC@)

b. When download bit images are defined (GS*)

c. When download characters are deleted (ESC?)

d. When NV bit images are defined (FSq)

e. When the printer power is turned off

STAR

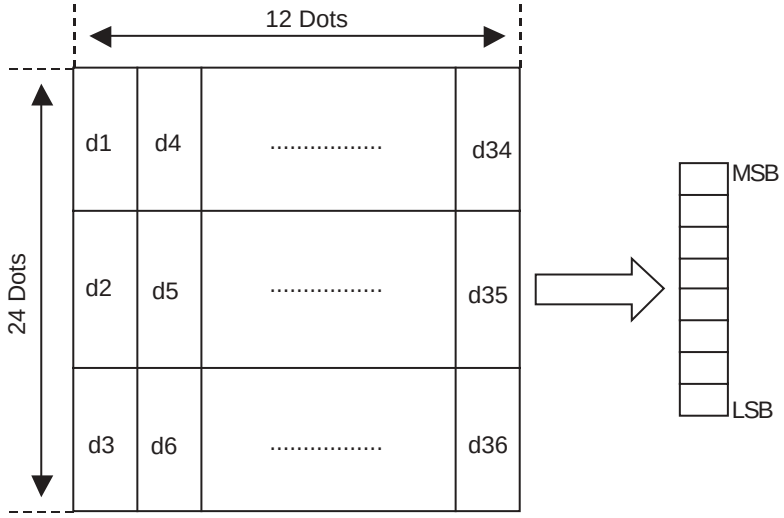
Font configurations and regions for effective parameters on STAR printers

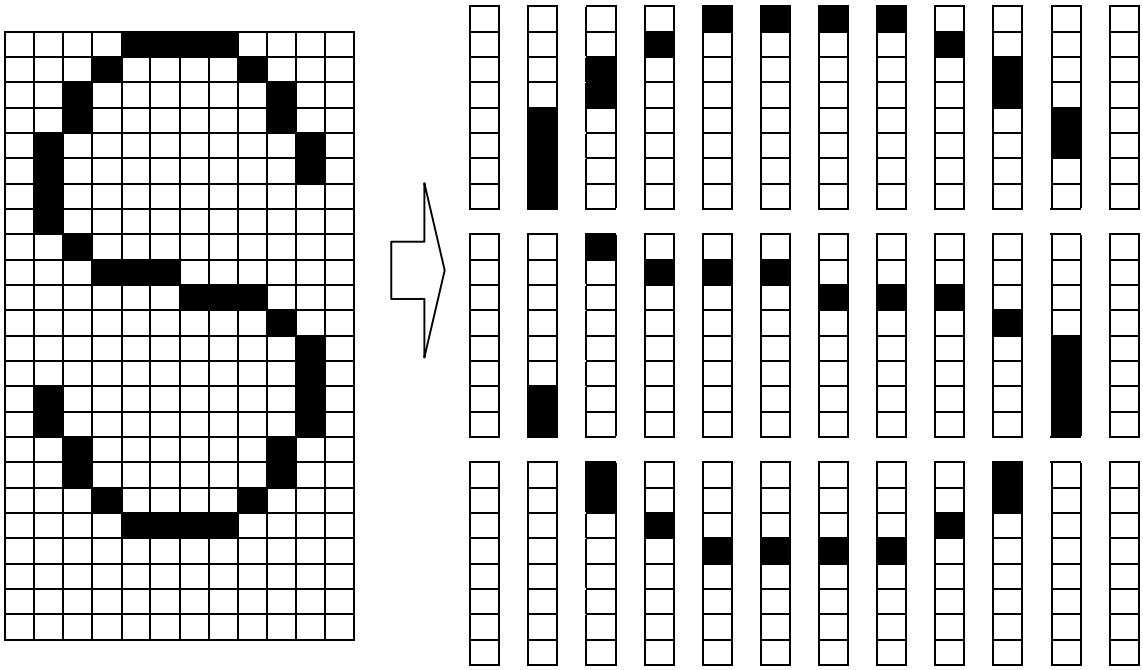
Character Fonts	Horizontal Dots x Vertical Dots	y	x	Data Count
Font A	12 x 24 Dots	3	12	36 bytes
Font B	9 x 24 Dots	3	9	27 bytes

Reference

ESC%, ESC?

[Ex.:] When Font A (12 x 24) is selected



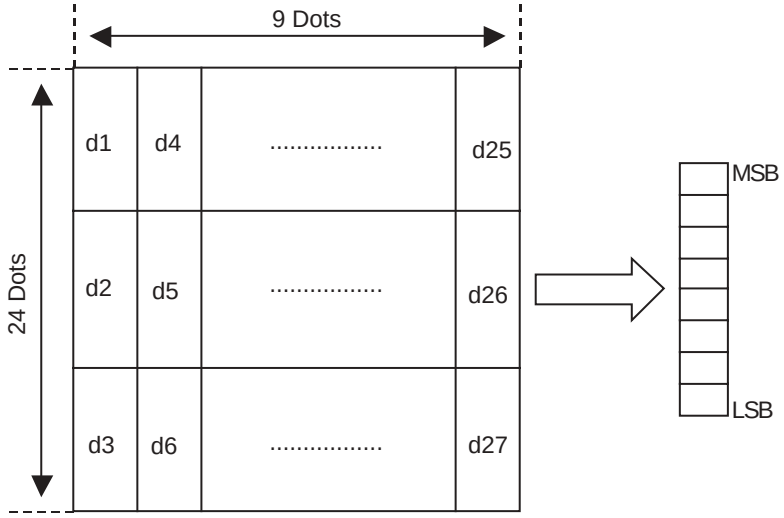


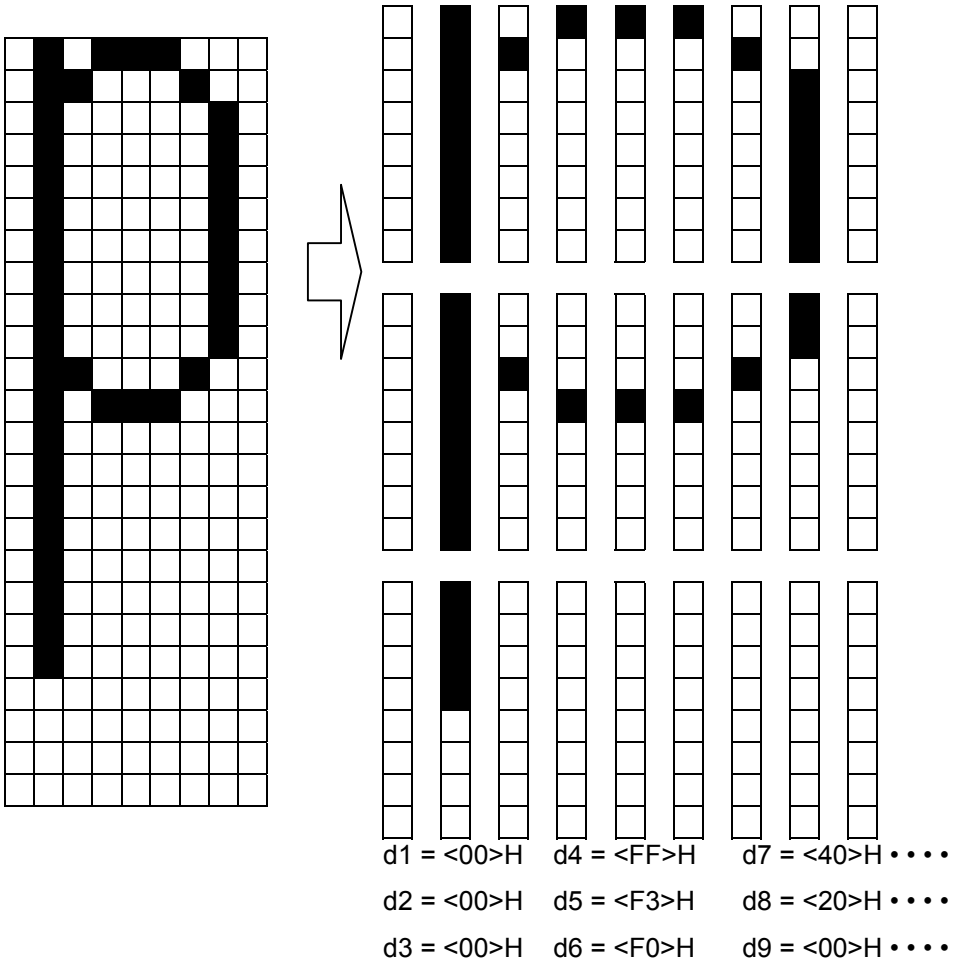
d1 = <00>H d4 = <0F>H d7 = <30>H • • • •

d2 = <00>H d5 = <03>H d8 = <80>H • • • •

d3 = <00>H d6 = <00>H d9 = <C0>H • • • •

[Ex.:] When Font B (9 x 24) is selected





d1 = <00>H d4 = <FF>H d7 = <40>H • • • •

d2 = <00>H d5 = <F3>H d8 = <20>H • • • •

d3 = <00>H d6 = <F0>H d9 = <00>H • • • •

ESC * m nL nH d1…dk

Name: Specify bit image mode

Code:

ASCII	ESC	*	m	nL	nHd1...dk
Hex.	1B	2A	m	nL	nHd1...dk
Decimal	27	42	m	nL	nHd1...dk

Defined Region: m = 0,1,32,33

$0 \leqq nL \leqq 255$

$0 \leqq nH \leqq 3$

$0 \leqq d \leqq 255$

Function: Selects a bit-image mode in mode *m* for the number of dots specified by *nL* and *nH*.

m	Mode	Number of Vert. Dir. Dots	Number of Hor. Dir. Dots	Density of Hor. Dir. Dots	Data Count (k)
0	8-dot single density	8	60 DPI	90 DPI	nL+nH×256
1	8-dot double density	8	60 DPI	180 DPI	nL+nH×256
32	24-dot single density	24	180 DPI	90 DPI	(nL+nH×256) ×3
33	24-dot double density	24	180 DPI	180 DPI	(nL+nH×256) ×3

Details:

- If the value of m is out of the specified range, nL and subsequent data are processed as normal data.
- nL and nH indicate the number of dots in the bit image in the horizontal direction to print. The number of dots is calculated by (nL + nH x256).
- If the bit-image data input exceeds the number of dots that can be printed on one line, the excess data is discarded.
- d indicates the bit-image data. Bits that correspond to the dots to print are 1, and the bits that correspond to the dots that are not printed are 0.
- After processing bit images, the printer returns to normal data processing.
- Excluding upside-down printing, print modes (emphasized printing, double printing, underlines, character sizes and black/white inverted printing) are unaffected.
- For details on the bit image expansion position in the page mode, see section 2. Explanations of the Page Mode.

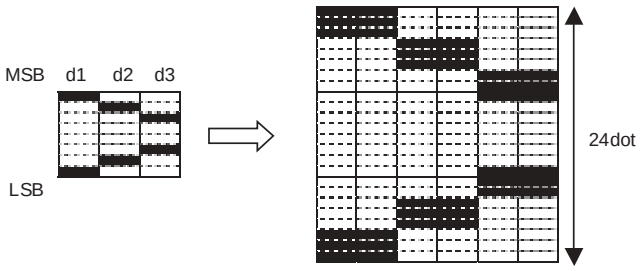
STAR:

- Dot density (when the STAR printer head = 203 DPI) on STAR printers.

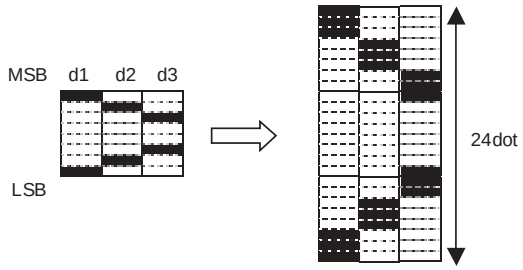
m	Mode	Density of Vert. Direction Dots	Density of Hor. Direction Dots
0	8-dot single density	67 DPI	101 DPI
1	8-dot double density	67 DPI	203DPI
32	24-dot single density	203DPI	101 DPI
33	24-dot double density	203DPI	203DPI

- Fonts A and B and Chinese characters can be used together.

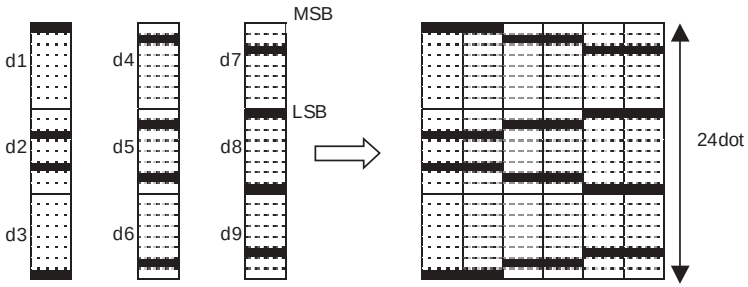
< 8-dot single density >



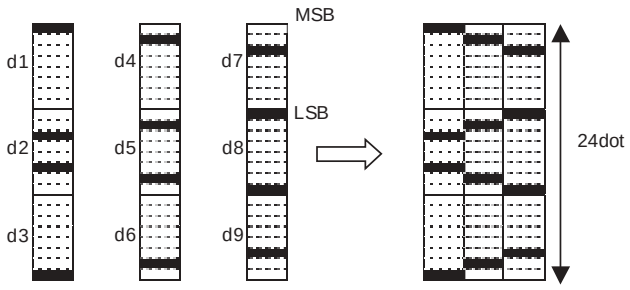
< 8-dot double density >



< 24-dot single density >



< 24-dot double density >



ESC - n

Name: Specify/cancels underline mode

Code:

ASCII	ESC	_	n
Hex.	1B	2D	n
Decimal	27	45	n

Defined Region: $0 \leqq n \leqq 2$, $48 \leqq n \leqq 50$

Initial Value: n = 0

Function: Specifies or cancels underlines.

n	Function
0, 48	Cancels underline
1, 49	Sets to one-dot width underline and specifies underlines.
2, 50	Sets to two-dot width underline and specifies underlines.

Details:

- An underline is applied to the entire character width, including the ESC SP (character right space amount). However, underlines are not applied to portions that have been skipped using HT (horizontal tab) or ESC V (character 90 degree rotation).
- Underlines are not applied to ESCV (characters rotated 90 degrees clockwise) or GSB (black/white inverted characters).
- When underline mode is cancelled by setting the value of n = 0 or n = 48, subsequent data is not underlined, and the underline thickness set before the mode is turned off is maintained.

The default underline thickness is 1 dot.

- Character size does not affect the set underline thickness.
- Underline mode can also be turned on or off by using ESC ! (batch specify print mode). Note, however, that the last received command is effective. Therefore, if the underline mode is canceled using the ESC – command after specifying underlines using the ESC ! command, the ESC ! command is cancelled.
- This command does not affect Chinese characters.

STAR:

- Underlines are applied to the following positions for both Font A and Font B.
- 1-dot thickness underline → 24^{th} dot
- 2-dot thickness underline → 23^{rd} and 24^{th} dot

Reference: ESC !

ESC 2

Name Set default line spacing

Code ASCII ESC 2

Hex. 1B 32

Decimal 27 50

Function Sets line feed amount per one line to approximately 4.23 mm (1/6 inch).

Details Line spacing can be set independently for both the standard and page modes.

STAR EPSON has models that have 180 DPI and 203 DPI print heads. STAR's print head is 203 DPI. Therefore, when targeting models with the EPSON 180 DPI print head, it is necessary to correct the line spacing that will generate from the difference in the head's print density.

In this case, the default line spacing on STAR printers is corrected to the following according to the basic calculated pitch correction on the DIP switches. This does not apply for target models that have 203 DPI print heads, or models that do not require correction.

DIP Switch Basic Calculate Pitch Correction	Default Line Spacing
203 DPI (Default)	Approximately 4.23 mm (1/6 inch)
180 DPI	Approximately 3.75 mm

Reference ESC 3

ESC 3 n

Name	Set line feed amount			
Code	ASCII	ESC	3	n
	Hex.	1B	33	n
	Decimal	27	51	n

Defined Region: $0 \leqq n \leqq 255$

Initial Value: Line feed amount equivalent to approximately 4.23 mm (1/6 inch).

Function: Sets the line space for one line to [n x basic calculated pitch].

Details:

- Line spacing can be set independently for both the standard and page modes.
- The basic calculated pitch is set by GSP (Set basic calculated pitch). Also, after setting the line space, it is not affected even if the basic calculated pitch is changed.
- If the calculation results in fractions, the pitch is corrected to a minimal mechanical pitch and the rest is discarded.
- In standard mode, the basic calculated pitch (y) for the vertical direction is used.
- In page mode, the basic calculated pitch that is used according to the starting point varies.

a. When the starting point is specified to be upper left or lower right by the ESC T command (Character print direction selection in page mode), the basic calculated pitch (x) for the horizontal direction is used.

b. When the starting point is specified to be upper right or lower left by the ESC T command (Character print direction selection in page mode), the basic calculated pitch (y) for the horizontal direction is used.

- The maximum value that can be set for the line space is approximately 1,016mm (or 40 inches). Specifications that exceed the maximum value are rounded off to that value.

Reference: ESC 2, GS P

ESC = n

Name Select peripheral device

Code

ASCII	ESC	=	n
Hex.	1B	3D	n
Decimal	27	61	n

Defined Region $0 \leqq n \leqq 255$

Initial Value n = 1

Function 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

Details
- If the printer is selected to be invalid, the printer discards all data from the next data until the printer is made valid again by this command. (This excludes DLEEOT, DLEENQ, DLEDC4.)

STAR
- Even when the printer is not invalid, the printer specification of this command (n = 1) is processed.

ESC ? n

Name	Delete download characters			
Code	ASCII	ESC	?	n
	Hex.	1B	3F	n
	Decimal	27	63	n
Defined Region	$32 \leq n \leq 126$			
Function	Deletes the download characters to the specified character code.			
Details	• n specifies the character code to delete the defined pattern. After deleting, the printer prints the same pattern as the internal characters. • Deletes the specified code definition pattern of the character code selected by ESCM and ESC !. • This command is ignored when the specified character code is undefined.			
Reference	ESC &, ESC %			

ESC @

Name	Initialize printer		
Code	ASCII	ESC	@
	Hex.	1B	40
	Decimal	27	64
Function	Clears data from the print buffer and sets the printer to its default settings.		
Details	• DIP switch settings are not reload.		
	• Data in the reception buffer is maintained.		
	• Macro definition information is maintained.		
	• NV bit image definition information is maintained.		
	• User NV memory data is maintained.		
	• When page mode is selected, this recovers to standard mode.		
STAR	The printer is initialized by this command under the following conditions.		
	• Selection of an effective paper out detector for paper out signal output (ESC c 3n)		
	• Select an effective paper out detector for printing stop (ESC c 4n)		

ESC D n1 … nk NUL

Name	Set horizontal tab position				
Code	ASCII	ESC	D	n1...nk	NUL
	Hex.	1B	44	n1...nk	NUL
	Decimal	27	68	n1...nk	NUL

Defined Region

$1 \leqq n \leqq 255$

$0 \leqq k \leqq 32$

Initial Value

- Every 8 characters when using Font A (12 x 24) and the setting for the right spacing of characters is 0. (9^{th} column, 17^{th} column, 25^{th} column …)

Function

Sets horizontal tab position

- n specifies the column number for setting a horizontal tab position from the left margin or the beginning of the line.
- k indicates the number of horizontal tab positions to be set.

Details

- The horizontal tab position is a value of from the left margin or the beginning of the line [n x character width].

  Character width is the horizontal width including ESC SP (character right space). If the character horizontal direction magnification ratio is more than 2, the character width is also enlarged accordingly.
- This command cancels the previous set horizontal tab settings.
- When horizontal tab position setting n = 8, the next print position is moved to column 9 by executing HT (horizontal tab).
- Up to 32 tab positions (k = 32) can be set. Subsequent data exceeding that is processed as normal data.
- <n> for specifying horizontal position settings is input in ascending order. It is quit using <00>H. If <n> is less than or equal to the preceding value <n>, horizontal tab setting is completed and subsequent data is processed as normal data.
- ESC D NULL cancels all horizontal tab positions.
- Previously specified horizontal tab positions do not change, even if the character width changes after setting the horizontal tab position.

  The character width is stored for standard and page modes.

STAR

- When using Chinese character mode, set for the pitch of the ANK fonts (Font-A and Font-B).
- If <n> exceeds the printable region, set the horizontal tab position to the position +1 of the maximum print column count.

Reference

HT

ESC E n

Name	Specify/cancel emphasized characters			
Code	ASCII	ESC	E	n
	Hex.	1B	45	n
	Decimal	27	69	n
Defined Region	0 ≦ n ≦ 255			
Initial Value	n = 0			
Function	Specifies or cancels emphasized characters.			
	• Cancels emphasized characters when n = <*******0>B.			
	• Specifies emphasized characters when n = <*******1>B.			
Details	• n is effective only when it is the lowest bit.			
	• The setting of the last received command is effective even when emphasized printing is executed by the ESC! (Batch specify print mode) command.			
	• This command is enabled for ANK characters and Chinese characters.			
Reference	ESC !			

ESC G n

Name	Specify/cancel double printing			
Code	ASCII	ESC	G	n
	Hex.	1B	47	n
	Decimal	27	71	n
Defined Region	0 ≦ n ≦ 255			
Initial Value	n = 0			
Function	Specifies or cancels double printing.			
	• Cancels double printing when n = <*******0>B.			
	• Specifies double printing when n = <*******1>B.			
Details	• n is effective only when it is the lowest bit.			
	• This printer is not capable of double printing, so the print is the same as when using emphasized printing.			
	• This command is enabled for ANK characters and Chinese characters.			
Reference	ESC E			

ESC J n

Name	Print and Paper Feed			
Code	ASCII	ESC	J	n
	Hex.	1B	4A	n
	Decimal	27	74	n
Defined Region	0 ≦ n ≦ 255			
Function	Prints the data in the print buffer and feeds the paper [n x basic calculated pitch].			

Details

- Sets the print position to the beginning of the next line after execution.
- The line spacing amount set by the following commands is not affected.

a. ESC 2 (Default line feed amount)

b. ESC 3 (Set line feed amount)

- The basic calculated pitch is set by GSP (Set basic calculated pitch).
- If the calculation results in fractions, the pitch is corrected to a minimal mechanical pitch and the rest is discarded.
- In standard mode, the basic calculated pitch (y) for the vertical direction is used.
- In page mode, the basic calculated pitch that is used according to the starting point varies.

a. When the starting point is specified to be upper left or lower right by the ESC T command (Character print direction selection in page mode), the basic calculated pitch (x) for the horizontal direction is used.

b. When the starting point is specified to be upper right or lower left by the ESC T command (Character print direction selection in page mode), the basic calculated pitch (y) for the horizontal direction is used.

- Paper is fed approximately 1016 mm if the [n x basic calculated pitch] exceeds approximately 1016 mm (40 inches).

STAR

- When the setting for the line feed amount is smaller than the print data height in standard mode:

a. If there is no print data, a line feed operation is executed according to the line feed amount.

b. If there is print data, a line feed operation is executed for the height of the print data.

Reference GS P

ESC L

Name	Select page mode
Code	ASCII ESC L
	Hex. 1B 4C
	Decimal 27 76
Function	Switches from standard mode to page mode.
Details	• Enabled only when input with the top of line.
	• Invalid when input by page mode.
	• Returns to standard mode after the following commands are issued.
	a. FF (Print and recover to page mode)
	b. ESC S (Select standard mode)
	• Character expansion position has the starting point specified by ESC T (Character print direction selection in page mode) in the printing region designated by the ESC W (Set print region in the page mode) command.
	• This command switches the settings for the following commands the values of which can be set independently in standard mode and page mode to those for page mode
	a. Set space amount: ESC SP, FS S
	b. Set line feed amount: ESC 2, ESC 3
	• The following commands are enabled only when in page mode.
	a. ESC V :Specify/cancel character 90 degree clockwise rotation
	b. ESC a :Position alignment
	c. ESC { :Specify/cancel upside-down printing
	d. GS L :Set left margin
	e. GS W :Set print region width
	• The following command is ignored in page mode.
	a. GS (A :Test print
	• The following commands are invalid in page mode.
	a. FSp :Print NV bit image
	b. FSq :Define NV bit image
	c. FSg1 :Write data to user NV memory
	d. GSv0 :Print raster bit images
	• Recover to standard mode using ESC@ (initialize printer).
Reference	FF, CAN, ESC FF, ESC S, ESC T, ESC W, GS $, GS \
	See section 2. Explanations of the Page Mode for details.

ESC M n

Name Select character font

Code

ASCII	ESC	M	n
Hex.	1B	4D	n
Decimal	27	77	n

Defined Region n = 0, 1, 48, 49

Function Selects character font.

n	Function
0,48	Selects Font A (12 x 24).
1,49	Selects Font B (9 x 17).

Details
- It is possible to select the character font using ESC! (Batch specify Chinese character print mode), but the last command received is effective.

STAR
- The following are the font configurations on STAR printers.

Character Fonts	Horizontal Dots x Vertical Dots
Font A	12 x 24 Dots
Font B	9 x 24 Dots

Reference ESC !

ESC R n

Name	Select international characters			
Code	ASCII	ESC	R	n
	Hex.	1B	52	n
	Decimal	27	82	n
Defined Region	0 ≦ n ≦ 10			
Initial Value	n = 0			
Function	Selects the character set for the country listed below.			

n	Country
0	America
1	France
2	Germany
3	UK
4	Denmark I
5	Sweden
6	Italy
7	Spain I
8	Japan
9	Norway
10	Denmark II
11	Spain II
12	Latin America
13	Korea

ESC S

Name	Select standard mode
Code	ASCII ESC S
	Hex. 1B 53
	Decimal 27 83
Function	Switches from page mode to standard mode.
Details	• Valid only when input by page mode.
	• All buffer data in page mode is deleted.
	• Sets the print position to the beginning of the next line after execution.
	• The print area set by ESCW (Set print region in page mode) is reset to the default setting.
	• This command switches the settings for the following commands the values of which can be set independently in standard mode and page mode to those for standard mode
	a. ESC SP :Set character right space amount
	b. FS S :Set Chinese character space amount
	c. ESC 2 :Set default line spacing
	d. ESC 3 :Set line feed amount
	• The following commands are effective only when in standard mode.
	a. ESC W :Set print region in page mode
	b. ESC T :Select character print direction in page mode
	• The following commands are ignored in standard mode.
	a. GS S :Specify absolute position for character vertical direction in page mode
	b. GS \: :Specify relative position for character vertical direction in page mode
	• Standard mode is selected when the power is turned on, the printer is reset or initialized (ESC @).
Reference	FF, ESC FF, ESC L

ESC T n

Name Select character print direction in page mode

Code

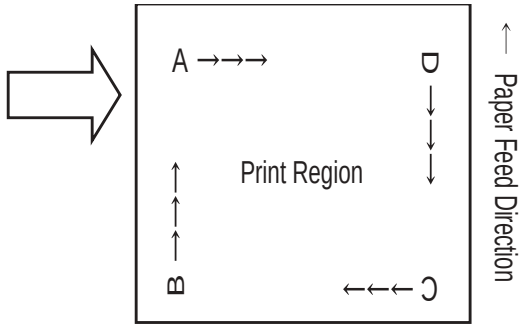
ASCII	ESC	T	n
Hex.	1B	54	n
Decimal	27	84	n

Defined Region $0 \leqq n \leqq 3, 48 \leqq n \leqq 51$

Initial Value n = 0

Function Selects the character printing direction and starting point in page mode.

n	Print Direction	Starting Point
0, 48	Left to Right	Upper Left (A in the figure below)
1, 49	Bottom to Top	Lower Left (B in the figure below)
2, 50	Right to Left	Lower Right (C in the figure below)
3, 51	Top to Bottom	Upper Right (D in the figure below)



Details

- Executes only a printer internal flag operation when this command is input in standard mode.

  The command does not affect printing in standard mode.

- The character expansion starting point is in the print region specified by ESC W (Set print region in page mode).
- The basic calculated pitch (x or y) used with the following commands differs according to the starting point.

a. If the starting point is upper left or lower right (feeds paper and expands characters in the vertical direction)

Commands using x :ESC SP, ESC $, ESC \, FS S

Commands using y :ESC 3, ESC J, GS $, GS \

b. If the starting point is upper right or lower left

Commands using x :ESC 3, ESC J, GS $, GS \

Commands using y :ESC SP, ESC $, ESC \, FS S

Reference ESC $, ESC L, ESC W, ESC \, GS $, GS P, GS\

ESC V n

Name Specify/cancel character 90 degree clockwise rotation

Code

ASCII	ESC	V	n
Hex.	1B	56	n
Decimal	27	86	n

Defined Region $0 \leqq n \leqq 1$, $48 \leqq n \leqq 49$

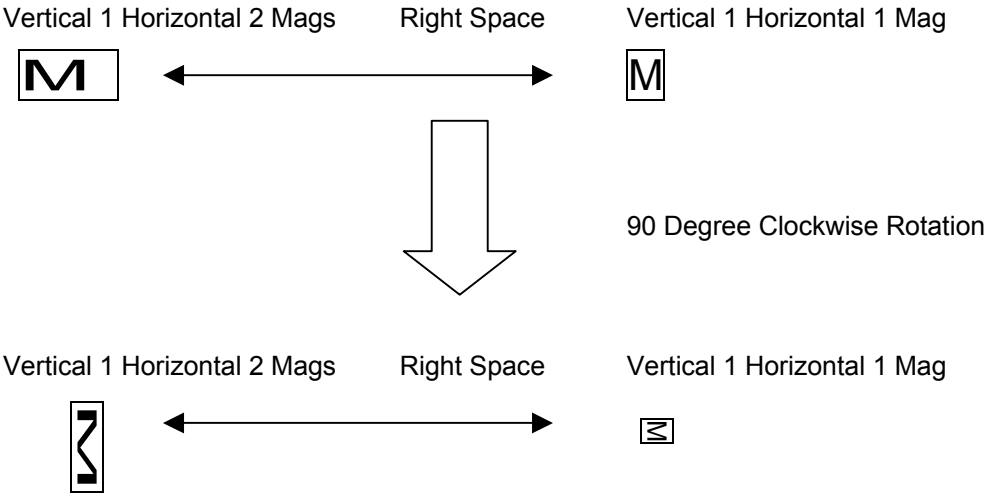
Initial Value n = 0

Function Specifies or cancels character 90 degree clockwise rotation.

n	Function
0, 48	Cancels 90 degree clockwise rotation
1, 49	Specifies 90 degree clockwise rotation

Details
- Underlines are not applied to characters rotated 90 degrees clockwise even when ESC !, ESC – or FS – commands are given.
- If 90 degree clockwise rotation is specified, double-wide and double-tall commands in the 90 rotation mode enlarges characters in the opposite directions to double-wide and double-tall commands.
- This command only affects printing in standard mode.
- In page mode, this command is only effective for the setting.
- This command is effective for ANK and Chinese characters.

STAR
- Characters are rotated as shown below when printing 90 degree clockwise rotation characters.



Reference ESC !, ESC -

ESC W xL xH yL yH dxL dxH dyL dyH

Name	Set print region in page mode										
Code	ASCII	ESC	W	xL	xH	yL	yH	dxL	dxH	dyL	dyH
	Hex.	1B	57	xL	xH	yL	yH	dxL	dxH	dyL	dyH
	Decimal	27	87	xL	xH	yL	yH	dxL	dxH	dyL	dyH

Defined Region $0 \leqq xL, xH, yL, yH, dxL, dxH, dyL, dyH \leqq 255$

However, this excludes dxL = dxH = 0 or dyL = dyH = 0

Initial Value xL = xH = yL = yH = 0

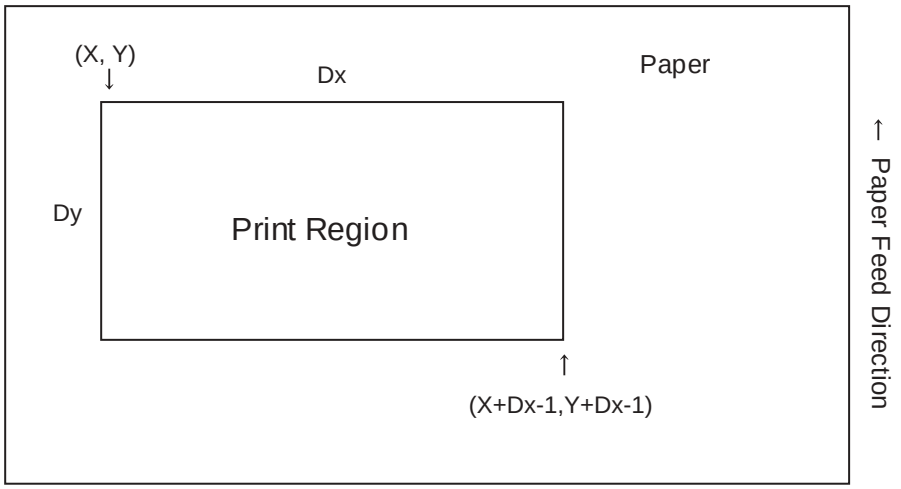
See Appendix-5 for details relating to dxL, dxH, dyL, dyH.

Function Sets the print region position and size.

- Horizontal direction starting point [(xL + xH x 256) x basic calculated pitch]
- Vertical direction starting point [(yL + yH x 256) x basic calculated pitch]
- Horizontal direction length [(dxL + dxH x 256) basic calculated pitch]
- Vertical direction length = [(dyL + dyH x 256) basic calculated pitch]

Details

- In standard mode, the printer executes only internal flag operations with this command is input.
- If the horizontal direction starting point or vertical direction starting point is outside of the printable region, the command is stopped and normal printing commences from subsequent data.
- If the horizontal direction length or vertical direction length is 0, the command is stopped and normal printing commences from subsequent data.
- The character expansion starting point is the point specified by selecting the character printing direction (ESC T) in page mode in the print region.
- If (horizontal direction starting position + horizontal direction length) exceeds the printable region in the horizontal direction, the horizontal direction length is set to (horizontal direction printable region - horizontal direction starting point).
- If (vertical direction starting position + vertical direction length) exceeds the printable region in the vertical direction, the vertical direction length is set to (vertical direction printable region - vertical direction starting point).
- The basic calculated pitch is set by GSP (Set basic calculated pitch). Also, the set printing region is not changed even if the basic calculated pitch is changed after setting the print region.
- If the calculation results in fractions, the pitch is corrected to a minimal mechanical pitch and the rest is discarded.
- The basic calculated pitch (x) is used in the calculated pitch for the horizontal direction starting point and the length in the horizontal direction; and the basic calculated pitch (y) is used in the calculated pitch for the vertical direction starting point and the length in the vertical direction.
- The print region shown in the figure below when the horizontal direction starting is X; the vertical direction starting point is Y; the horizontal direction length is Dx; and the vertical direction length is Dy.
- See Appendix-5 for details on print regions.



Reference CAN, ESC L, ESC T, GSP, Appendix-5

ESC \ nL nH

Name	Specify relative position				
Code	ASCII	ESC	\	nL	nH
	Hex.	1B	5C	nL	nH
	Decimal	27	92	nL	nH
Defined Region	0 ≦ nL ≦ 255				
	0 ≦ nH ≦ 255				

Function

- Specifies the next print starting position with a relative position based on the current position. This sets the position from the current position to [(nL + nH x 256) x basic calculated pitch] for the next print starting position.

Details

- Specifications exceeding the print range are ignored.
- If the right direction of the current position is specified for the character direction, specify a positive number; if the left direction is specified, a negative number is used.
- Negative numbers is represented by the complement of 65536. For example, when moving in the left direction n pitches, use:

nL + nH × 256 = 65536-N

- The basic calculated pitch is set by GSP (basic calculated pitch setting).
- If there are fractions in the result, correct to the minimum mechanical pitch and discard.
- Use the basic calculated pitch (x) for the horizontal direction in standard mode.
- The following operations occur according to the starting point in page mode.

a. If the starting point is set to upper left or lower right by the ESC T (Select character print direction in page mode) command, specify the relative position of the vertical direction in the paper feed. Use the basic calculated pitch (x) for the horizontal direction at this time.

b. If the starting point is set to upper right or lower left by the ESC T (Select character print direction in page mode) command, move the print position in the paper feed direction. Use the basic calculated pitch (y) for the horizontal direction at this time.

Reference ESC $, GS P

ESC a n

Name: Position alignment

Code:

ASCII	ESC	a	n
Hex.	1B	61	n
Decimal	27	97	n

Defined Region: $0 \leqq n \leqq 2, 48 \leqq n \leqq 50$

Initial Value: n = 0

Function: Aligns all print data in one line to a specified position.

N	Position
0, 48	Left alignment
1, 49	Center
2, 50	Right alignment

Details:

- This command is effective only when input at the top of the line when standard mode is being used.
- This command does has no affect in page mode. In page mode, this command is only effective for the setting.
- Specifies the alignment position in the printing region that has been set.
- Portions skipped using the following commands are also targeted for position alignment.

a. HT : Horizontal tab

b. ESC $: Specify absolute position

c. ESC \ : Specify relative position

[Ex.]

Left alignment	Center	Right alignment
ABC	ABC	ABC
ABCD	ABCD	ABCD
ABCDE	ABCDE	ABCDE

ESC c 3 n

Name Select paper out sensor to enable at paper out signal output

Code

ASCII	ESC	c	3	n
Hex.	1B	63	33	n
Decimal	27	99	51	n

Defined Region $0 \leqq n \leqq 15$

Initial Value (A) Specification: n = 12

(B) Specification: n = 0

Function Selects paper out detector that outputs a paper out signal when paper has run out.

2. Specifications

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

Details

- It is possible to select a multiple of detectors for signal output at the same time. If any of the detectors detects the end of the paper, the paper end signal is output.
- This command is only effective when using a parallel interface. It is ignored when using a serial interface.
- The detector switches when this command is executed so there may be some delay from reception of this command until switching to the paper out signal, depending on the status of the reception buffer.
- If either bit 0 or bit 1 is set to 1, select the paper roll near end detector as the paper out detector for paper out signal output.
- If either bit 2 or bit 3 is set to 1, select the paper roll end detector as the paper out detector for paper out signal output.
- If all detectors are invalid, the paper out signal is constantly output as having paper.

ESC c 4 n

Name: Select paper out sensor to enable at printing stop

Code:

ASCII	ESC	c	4	n
Hex.	1B	63	34	n
Decimal	27	99	52	n

Defined Region: $0 \leqq n \leqq 255$

Initial Value: n = 0

Function: Selects the paper out detector to stop printing when paper has run out.

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

Details:

- To stop printing, the printer stops after printing the current line and feeding paper.
- The printer goes offline when printing is stopped.
- If either bit 0 or bit 1 is set to 1, select the paper roll near end detector as the paper out detector effective to stop printing.

ESC c 5 n

Name	Enable/disable panel switches				
Code	ASCII	ESC	c	5	n
	Hex.	1B	63	35	n
	Decimal	27	99	53	n
Defined Region	0 ≦ n ≦ 255				
Initial Value	n = 0				
Function	Toggles the panel switches between enabled and disabled.				
	• Enables panel switches when n = <*******0>B.				
	• Disables panel switches when n = <*******1>B.				
Details	• n is effective only when it is the lowest bit.				
	• When disabled, all panel switches are disabled.				
	• The paper feed switch is enabled regardless of this command if waiting for the switch while executing a macro. However, there is no paper feed.				
STAR	• Switches are disabled even if the panel switches are enabled using this command for the following cases.				
	a. When paper out errors occur				
	b. When cover open errors occur				
	• Use the ESC @ command to reset the panel switches disabled using this command.				

ESC d n

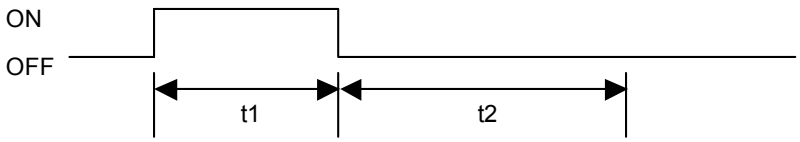
Name	Print and feed paper n lines
Code	ASCII ESC d n Hex. 1B 64 n Decimal 27 100 n
Defined Region	0 ≦ n ≦ 255
Function	Prints the data in the print buffer and performs a paper feed of n lines.
Details	• Sets the print position to the beginning of the next line after printing. • Line feeds set by the following commands are not affected. a. ESC 2: Set default line spacing b. ESC 3: Set line feed amount • Paper is fed approximately 1016 mm (40 inches) if the [n x line feed amount] exceeds approximately 1016 mm (40 inches) .
STAR	• When the setting for the line feed amount is smaller than the print data height in standard mode: a. If there is no print data, a line feed operation is executed according to the line feed amount. b. If there is print data, a line feed operation is executed for the height of the print data.
Reference	ESC 2, ESC 3

ESC p m t1 t2

Name	Specify pulse					
Code	ASCII	ESC	p	m	t1	t2
	Hex.	1B	70	m	t1	t2
	Decimal	27	112	m	t1	t2
Defined Region	0 ≦ m ≦ 1, 48 ≦ m ≦ 49					
	0 ≦ t1 ≦ 255					
	0 ≦ t2 ≦ 255					
Function	This outputs a signal specified by t1 and t2 to the connector pin specified by m.					

m	Connector Pin
0, 48	Drawer kick connector pin #2
1, 49	Drawer kick connector pin #5

Details Drawer kick on time is set to t1 x 2 ms; off time is set to t2 x 2 ms.



When t1 > t2, the value of t2 is processed as t2 = t1.

Reference DLE DC4

ESC t n

Name	Select character code table			
Code	ASCII	ESC	t	n
	Hex.	1B	74	n
	Decimal	27	116	n
Defined Region	0 ≦ n ≦ 5, n = 255			
Initial Value	n = 0			
Function	Select page n of the character code table.			

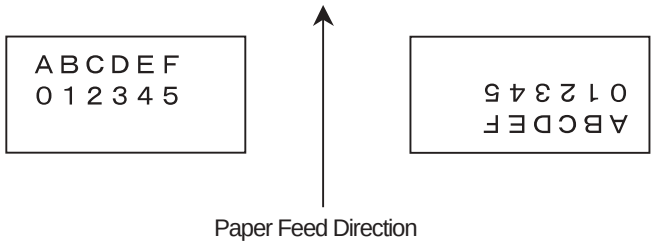
n	Character Type
0	PC437 (USA: Standard Europe)
1	Katakana
2	PC850(Multilingual)
3	PC860(Portuguese)
4	PC863(Canadian-French)
5	PC865(Nordic)
16	WPC1252
17	PC866 (Cyrillic #2)
18	PC852 (Latin2)
19	PC858
255	Blank page

Reference ESC GS t

ESC { n

Name	Specify/cancel upside-down printing
Code	ASCII ESC { n Hex. 1B 7B n Decimal 27 123 n
Defined Region	0 ≦ n ≦ 255
Initial Value	n = 0
Function	Specifies or cancels upside-down printing. • Cancels upside-down printing when n = <*******0>H. • Specifies upside-down printing when n = <*******1>H.
Details	• n is effective only when it is the lowest bit. • This command is effective only when input at the top of the line when standard mode is being used. • This command has no affect in page mode. In page mode, this command is only effective for the setting. • Upside-down printing rotates line data 180 degrees.
STAR	• The characters that are printed in upside-down printing are reversed, but the order of the lines that are printed are not in reverse.

When upside-down printing is canceled **When upside-down printing is specified**



• Upside-down printing is enabled for the following images.

a. ESC* : Specify bit image mode

b. GS /: Print download bit images

c. FS P: Print NV bit image mode

FS g 1 m a1 a2 a3 a4 nL nH d1 ... dk

Name	Write data to user NV memory										
Code	ASCII	FS	g	1	m	a1	a2	a3	a4	nL	nH d1...dk
	Hex.	1C	67	31	m	a1	a2	a3	a4	nL	nH d1...dk
	Decimal	28	103	49	m	a1	a2	a3	a4	nL	nH d1...dk

Defined Region

m = 0

$0 \leq \{a1 + (a2 \times 256) + (a3 \times 65536) + (a4 \times 16777216)\} \leq 1023$

$1 \leq \{nL + (nH \times 256)\} \leq 1024$

$32 \leq d \leq 255$

$k = \{nL + (nH \times 256)\}$

Function

Stores data in the user NV memory.

- m is fixed at 0.
- a1, a2, a3 and a4 specify the data storage addresses {a1 + (a2 x 256) + (a3 x 65536) + (a4 x 16777216)}.
- nL and nH specify the storage data count in byes of {nL+ (nH x 256)}.
- d specifies the stored data.

Details

- The user NV memory is a storage region dedicated for character data that is ensured on a non-volatile memory.
- This command is effective only when input at the top of the line when standard mode is being used.
- When in page mode, this command is invalid.
- When processing this command while defining a macro, the macro definition is terminated and the command commences with processing.
- This command is ignored and subsequent data is processed as normal data if the argument (m), storage starting address (a1, a2, a3, a4), and the storage data count (nL, nH) are out of the definition, or if [{the storage starting address (a1, a2, a3, a4) + storage data count (nL, nH)} $\geq$ 1024.
- This command is completed when the storage data (d) out of the definition is processed, and subsequent data is processed as normal data. At this time, data that has already been processed is stored in memory.
- The data storage process executes an overwrite.

Therefore, data that is already stored in the region is erased.

- A memory or gate array R/W error occurs when a writing error occurs.
- Data in the user NV memory can be read using FS g 2 (Read user NV memory data).
- User NV memory data is not initialized with the following.

a. ESC@ : Initialize printer

b. FS q: Define NV bit image

c. When the printer is reset or the power is turned off

Notes: **• There is the potential of damaging the non-volatile memory by overusing the command to write to that memory (FS g 1), so only use this command once a day to write to the non-volatile memory.**

• The printer may enter a busy state while writing data to the non-volatile memory when using this command. While the printer is busy, the printer will stop receptions so data will not be received from the host (including real-time commands).

STAR • STAR printers ignore this command. (It receives and discards the writing data of nL + nH x 256.)

Reference FS g 2

FS g 2 m a1 a2 a3 a4 nL nH

Name	Read user NV memory data										
Code	ASCII	FS	g	2	m	a1	a2	a3	a4	nL	nH
	Hex.	1C	67	32	m	a1	a2	a3	a4	nL	nH
	Decimal	28	103	50	m	a1	a2	a3	a4	nL	nH

Defined Region

m = 0

$0 \leq \{a1 + (a2 \times 256) + (a3 \times 65536) + (a4 \times 16777216)\} \leq 1023$

$1 \leq \{nL + (nH \times 256)\} \leq 80$

Function

Sends the data in the user NV memory.

- m is fixed at 0.
- a1, a2, a3 and a4 specify the data sending starting addresses {a1 + (a2 x 256) + (a3 × 65536) + (a4×16777216)}.
- nL and nH specify the transmissino data count in byes of {nL+ (nH x 256)}.

Details

- The user NV memory is a storage region dedicated for character data that is ensured on a non-volatile memory.
- This command is ignored and subsequent data is processed as normal data if the argument (m), storage starting address (a1, a2, a3, a4), and the storage data count (nL, nH) are out of the definition, or if [{the storage starting address (a1, a2, a3, a4) + storage data count (nL, nH)} $\geq$ 1024.
- The following process occur when preparations for transmitting data have been completed.

1. Executes a READY to BUSY process If the printer is already in a BUSY state, it does nothing.
2. Executes the [Header + Data + NUL] transmission
3. Executes a BUSY to READY process If the printer is already in a BUSY state for some other reason, it does nothing.

- The configuration for the [Header + Data + NUL] is below.

Header:	Hex. = 5FH/Decimal = 95 (1 byte)
Data:	User NV memory data (nL + (nH x 256) bytes)
NUL:	Hex. = 00H/Decimal = 0 (1 byte)

- When DTR/DSR control is selected, after verifying that the host can receive data when transmitting the Header, all code are transmitted consecutively. If the host is not able to receive data, the printer will wait until it is ready.
- When XON/XOFF control is selected, all code are transmitted consecutively without verifying whether the host can receive data. Always send data consecutively, except for the XOFF code.
- With parallel interfaces, the transmission data buffer (excluding ASB status and the buffer that store all transmission data) is 99 bytes. Data that exceeds 99 bytes is discarded.
- It is possible to write to the user NV memory using FS g 1.
- There is the possibility of delays between the reception of this command and the storage of data depending on the reception buffer status.

Notes: **• The printer transmits all data after starting transmission of the header without confirming whether the host computer can receive data. Therefore, when using this command, the host reception buffer size should be set to (transmission data + 2) to ensure that reception is not lost.**

• Real-time command (DLE expansion command) is ignored while transmitting data. Also, ASB status is not transmitted while transmitting data even when the ASB function is enabled. Therefore, status changes in the printer while transmitting data are not known. The operator should be aware of this.

STAR • STAR printers ignore this command. (They receive and discard FS g 2 m a1 a2 a3 a4 nL nH.)

Reference FS g 1

FS p n m

Name Print NV bit image

Code

ASCII	FS	p	n	m
Hex.	1C	70	n	m
Decimal	28	112	n	m

Defined Region $1 \leqq n \leqq 255$

$0 \leqq m \leqq 3, 48 \leqq m \leqq 51$

Function Prints NV bit image n using mode m.

m	Mode	Density of Vertical Direction Dots	Density of Horizontal Direction Dots
0, 48	Normal Mode	180 DPI	180 DPI
1, 49	Double-wide Mode	180 DPI	90 DPI
2, 50	Double-tall Mode	90 DPI	180 DPI
3, 51	Quadruple Mode	90 DPI	90 DPI

- n specifies the NV bit image number.
- m specifies the bit-image mode.

Details
- NV bit image is a bit image defined in non-volatile memory by FS q and printed by this command.
- This command is ignored when the specified NV bit image n is undefined.
- This command is effective only when no data exists in the print buffer in standard mode.

  If data exists, 2 bytes are ignored.
- When in page mode, this command is disabled.
- Excluding upside-down printing, print modes (emphasized printing, double printing, underlines, character sizes, black/white inverted printing and 90 degree clockwise rotation) are unaffected.
- If bit image specification is of a size that exceeds the print region, the data in the print region is targeted for printing, but the excessive data is not printed.
- This command feeds dots (for the height *n* of the NV bit image) in normal and double-width modes, and (for the height of the NV bit image n x 2) in double-height and quadruple modes, regardless of the line spacing specified by ESC 2 (Set default line spacing) or ESC 3 (Set line feed amount).
- After printing the bit image, this command sets the print position to the top of the line and processes the subsequent data as normal data.

STAR
- Dot density (when the STAR printer head = 203 DPI) on STAR printers.

m	Mode	Density of Vertical Direction Dots	Density of Horizontal Direction Dots
0, 48	Normal Mode	203 DPI	203 DPI
1, 49	Double-wide Mode	203 DPI	101 DPI
2, 50	Double-tall Mode	101 DPI	203 DPI
3, 51	Quadruple Mode	101 DPI	101 DPI

Related Commands ESC *, FS q, GS \, GS v 0

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

Name	Define NV bit image							
Code	ASCII	FS	q	n	[xLxHyLyHd1...dk]1	...	[xLxHyLyHd1...dk]	n
	Hex.	1C	71	n	[xLxHyLyHd1...dk]1	...	[xLxHyLyHd1...dk]	n
	Decimal	28	113	n	[xLxHyLyHd1...dk]1	...	[xLxHyLyHd1...dk]	n

Defined Region

$1 \leqq n \leqq 255$

$0 \leqq xL \leqq 255$

$0 \leqq xH \leqq 3$ However, $1 \leqq (xL+xH\times256) \leqq 1023$

$0 \leqq yL \leqq 255$

$0 \leqq yH \leqq 1$ However, $1 \leqq (yL+yH\times256) \leqq 288$

$0 \leqq d \leqq 255$

$k = (xL+xH\times256) \times (yL+yH\times256) \times 8$

Total defined data area = 2 M bytes (256 K bytes)

Function

Defines the specified NV bit image.

- n specifies the number of NV bit images to define.
- xL and xH specify the horizontal direction for one NV bit image (xL + xH x 256) x 8 dots.
- yL and yH specify the vertical direction for one NV bit image (yL + yH x 256) x 8 dots.

Details

- This command erases all previously defined NV bit images. The printer cannot redefine only one of several data definitions that had been defined before. Therefore, all data must be resent.
- Mechanical operations (such as initializing the position of the print head when the cover is open, feeding paper using a switch) cannot be executed from the time this command commences its process until a hardware reset is completed.
- NV bit image is a bit image defined by this command in non-volatile memory and is printed by the FS p (Print NV bit image) command.
- This command is effective only when processed at the top of the line when standard mode is being used.
- When in page mode, this command is disabled.
- This command is effective when 7 bytes of FS to yH of the command are processed normally.
- When the amount of data exceeds the capacity left in the range defined by xL, xH, yL, yH, the printer processes an argument that is out of the defined range.
- This command is invalid when processing an argument that is out of the defined range with the initial NV bit image data.
- The printer terminates processing of this command and starts writing data to the non-volatile memory if an argument out of the defined range is processed on the second and subsequent NV bit image data. This invalidates the NV bit image being defined (making it undefined), but the NV bit images prior to that are valid.
- d specifies defined data. Bits that correspond to the dots to print are 1, and the bits that correspond to the dots that are not printed are 0.
- An n number of NV bit images are defined in ascending order from 01H. Therefore, The first data of [xLxHyLyHd1…dk] is an NV bit image of the number 01H. The final data of [xLxHyLyHd1…dk] is the NV bit image of the number n.

This matches with the NV bit image number that is specified for NV bit image printing (by FS p).

- One NV bit image definition data is configured by [xL xH yL yH d1…dk]. Therefore, if defining only one NV bit image data, n = 1. The data of [xL xH yL yH d1…dk] is processed only once. This uses ([data: (xL + xH x 256) x (yL + yH x 256) x 8] + [Data: 4]) of non-volatile memory.
- The maximum region for NV bit image definition varies according to the printer model. Several NV bit images can be defined, but NV bit image data that exceeds the maximum definition region with a total capacity of (data bit image data + header) cannot be defined.
- The printer is in a BUSY state just prior to writing to the non-volatile memory. If the model carries DIP switches (conditions for a BUSY state), the printer will be in a BUSY state prior to writing data regardless of those DIP switch settings.
- The sending of ASB status and detection of status are not possible while processing this command even when the ASB function is specified.
- When processing this command while defining a macro, the macro definition is terminated and the command commences with processing.
- NV bit images that have been defined are not initialized by the ESC @ (Initialize printer), a reset or by turning off the printer's power.
- This command only defines the NV bit image, but it does not print it. To print an NV bit image, use FS p (Print NV bit image).

Notes: **• There is the potential of damaging the non-volatile memory by overusing the command, so only use this command once a day to write to the non-volatile memory.**

• The printer executes a hardware reset just after writing to the non-volatile memory. Therefore, download characters and download bit images and macros are handled as being undefined and the reception buffer and print buffer are cleared. The printer returns all settings to their default status.

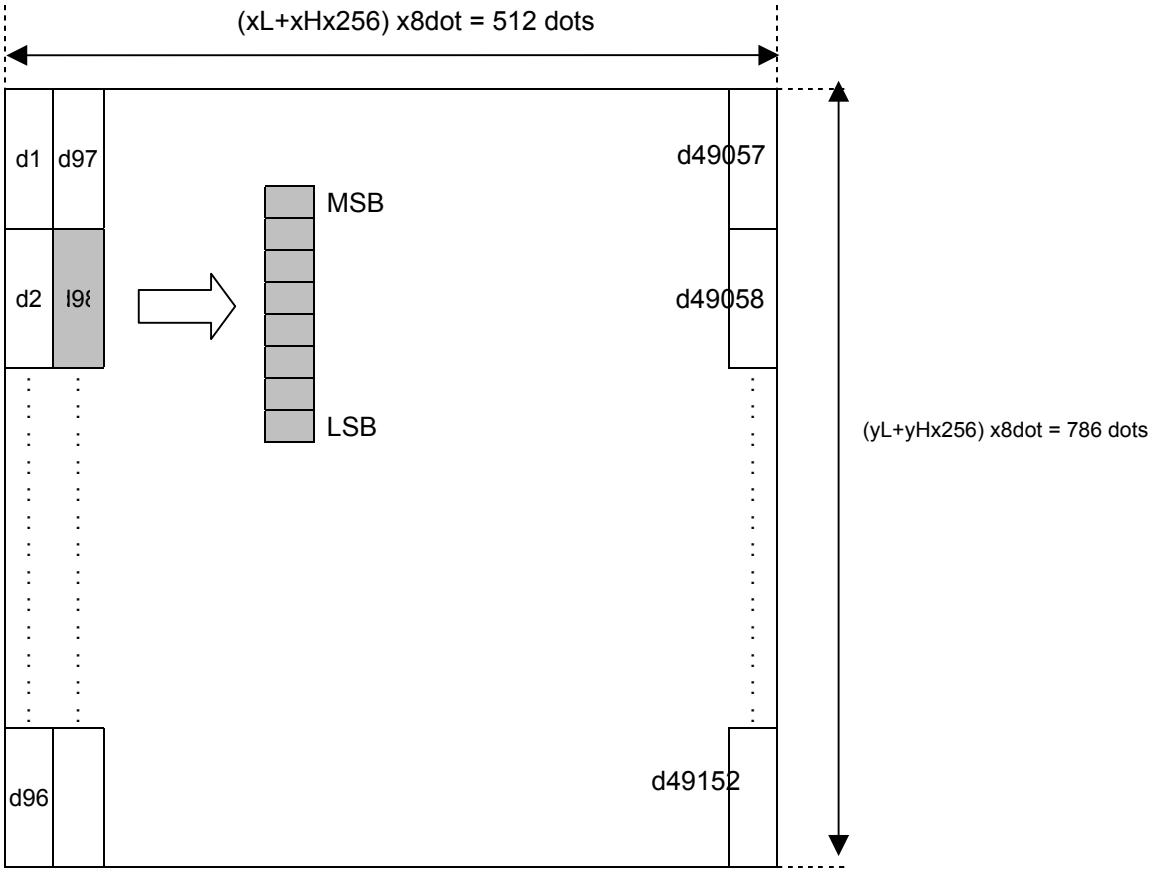
• The printer may enter a BUSY state while writing data to the non-volatile memory when using this command. While the printer is BUSY, the printer will stop receptions so data will not be received from the host (including real-time commands).

STAR • Dot density (when the STAR printer head = 203 DPI) on STAR printers.

m	Mode• • •	Density of Vertical Direction Dots	Density of Horizontal Direction Dots
0, 48	Normal Mode	203 DPI	203 DPI
1, 49	Double-wide Mode	203 DPI	101 DPI
2, 50	Double-tall Mode	101 DPI	203 DPI
3, 51	Quadruple Mode	101 DPI	101 DPI

Related Commands FS p

[Ex.:] For xL = 64, xH = 0, yL = 96, yH = 0



GS ! n

Name: Select character size

Code:

ASCII	GS	!	n
Hex.	1D	21	n
Decimal	29	33	n

Defined Region: 0 ≦ n ≦ 255

However, 1 ≦ vertical direction magnification ratio ≦ 8, 1 ≦ horizontal direction magnification ratio ≦ 8

Initial Value: n = 0

Function: Specifies the character size (magnification ratio in the vertical and horizontal directions).

Bit	Function	"0"	"1"
7	Specifies horizontal direction magnification ratio	(See table below)	
6			
5			
4			
3	Specifies vertical direction magnification ratio	(See table below)	
2			
1			
0			

<Horizontal Direction Magnification Ratio Specification>

Bit-7	Bit-6	Bit-5	Bit-4	Hor. Dir. Mag. Ratio
0	0	0	0	1
0	0	0	1	2
0	0	1	0	3
0	0	1	1	4
0	1	0	0	5
0	1	0	1	6
0	1	1	0	7
0	1	1	1	8
1	0	0	0	Undefined
1	0	0	1	Undefined
1	0	1	0	Undefined
1	0	1	1	Undefined
1	1	0	0	Undefined
1	1	0	1	Undefined
1	1	1	0	Undefined
1	1	1	1	Undefined

<Vertical Direction Magnification Ratio Specification>

Bit-3	Bit-2	Bit-1	Bit-0	Hor. Dir. Mag. Ratio
0	0	0	0	1
0	0	0	1	2
0	0	1	0	3
0	0	1	1	4
0	1	0	0	5
0	1	0	1	6
0	1	1	0	7
0	1	1	1	8
1	0	0	0	Undefined
1	0	0	1	Undefined
1	0	1	0	Undefined
1	0	1	1	Undefined
1	1	0	0	Undefined
1	1	0	1	Undefined
1	1	1	0	Undefined
1	1	1	1	Undefined

Details

- This command is effective for all characters (ANK and Chinese characters), excluding HRI characters.
- If the vertical and horizontal magnification ratios are outside the defined range, this command is ignored.
- In standard mode, the vertical direction is the paper feed direction; the horizontal direction traverses the paper feed direction. Therefore, when character orientation changes in 90 degree clockwise rotation mode, the relationship between vertical and horizontal directions is reversed.
- In page mode, vertical and horizontal directions are based on the character orientation.
- The base line for characters is the same when there are characters having different vertical direction ratios in the same line.
- The ESC ! (Batch specify print mode) command can also turn double-width and double-height modes on or off, but the setting of the last received command is effective.

Reference ESC !

GS $ nL nH

Name	Specify absolute position for character vertical direction in page mode				
Code	ASCII	GS	$	nL	nH
	Hex.	1D	24	nL	nH
	Decimal	29	36	nL	nH
Defined Region	0 ≦ nL ≦ 255, 0 ≦ nH ≦ 255				

Function

Specifies the character vertical direction position for the data expansion starting position using the absolute position based on the starting point in page mode. The position of the character vertical direction for the next data expansion starting position is the position specified by [(nL + nH x 256) x basic calculated pitch] from the starting point.

Details

- When not in page mode, this command is ignored.
- Specifications for absolute positions that exceed the specified print range are ignored.
- The position of the character horizontal direction of the data expansion starting position does not move.
- The starting point that is used as a reference is specified by ESC T.
- The following operations occur depending on the starting point of (Selecting the character printing direction in page mode) ESC T.

a. If the starting point is upper left or lower right, specify the absolution position for the paper feed direction (character vertical direction). Use the basic calculated pitch (y) for the horizontal direction at this time.

b. If the starting point is upper right or lower left, specify the absolution position for the paper feed in the vertical direction (character vertical direction). Use the basic calculated pitch (x) for the horizontal direction at this time.

- The basic calculated pitch is set by GSP (Set basic calculated pitch).
- If the calculation results in fractions, the pitch is corrected to a minimal mechanical pitch and the rest is discarded.

Reference

ESC $, ESC T, ESC W, ESC \, GS P, GS\

See section 2. Explanations of the Page Mode.

GS * xy d1 … d (xX yX 8)

Name	Define download bit images				
Code	ASCII	GS	*	x	yd1...d (x×y×8)
	Hex.	1D	2A	x	yd1...d (x×y×8)
	Decimal	29	42	x	yd1...d (x×y×8)

Defined Region

$1 \leqq x \leqq 255$

$1 \leqq y \leqq 48$ However, $x \times y \leqq 1536$

$0 \leqq d \leqq 255$

Function

Defines the download bit image of the number of dots specified by x and y.

- x specifies the number of dots in the horizontal direction.
- y specifies the number of bytes in the vertical direction.

Details

- Horizontal direction dot count is x X 8 dots; Vertical direction dot count is y X 8 dots
- d indicates the bit-image data.

  Bits that correspond to the dots to print are 1, and the bits that correspond to the dots that are not printed are 0.
- GS * (define download bit images) and ESC& (define download characters) cannot both be defined simultaneously. Download character definitions are cleared by executing this command.
- Defined download bit images are cleared under the following executions.

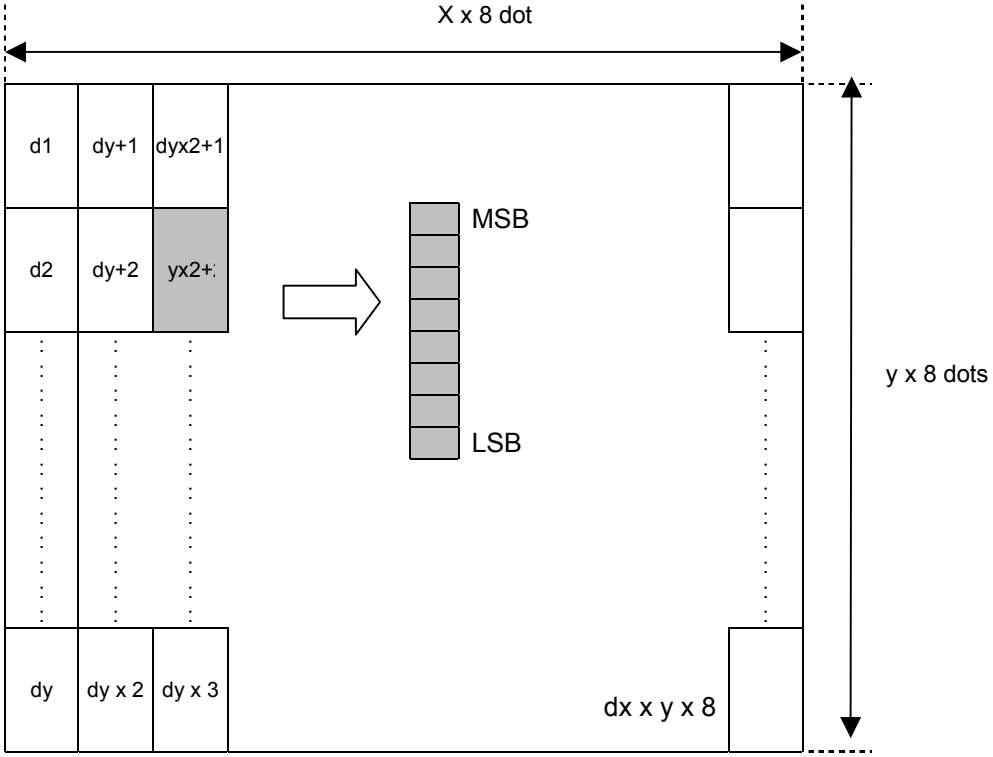
a. ESC @ : Initialize printer

b. ESC &: Define download characters

c. FS q: Define NV bit image

d. When the printer is reset or the power is turned off

• The following illustration shows the relationship between download bit images and the print data.



Reference GS /

GS (A pL pH n m

Name Test print

Code

ASCII	GS	(	A	pL	pH	n	m
Hex.	1D	28	41	pL	pH	n	m
Decimal	29	40	65	pL	pH	n	m

Defined Region {pL+ (pH×256) } = 2 (pL = 2,pH = 0)

0 ≦ n ≦ 2, 48 ≦ n ≦ 50

1 ≦ m ≦ 3, 49 ≦ m ≦ 51

Function Executes the specified test print.

- Specifies the parameter count following pL and pH in (pL + (pH x 256)) bytes.
- n specifies the paper to use in the test print shown in the tables below.

N	Paper Type
0, 48	Basic sheet (paper roll)
1, 49 2, 50	Paper Roll

- m specifies the type of test print shown in the tables below.

m	Type of Test Print
1, 49	Hexadecimal Dump
2, 50	Printer Status (Self Print)
3, 51	Rolling Pattern Print

Details
- This command is effective only when processed at the top of the line when standard mode is being used.
- When in page mode, this command is ignored.
- When processing this command while defining a macro, the macro definition is terminated and the command commences with processing.
- After the test print is completed, the printer executes a hardware reset. Therefore, download characters and download bit images and macros are handled as being undefined and the reception buffer and print buffer are cleared. The printer returns all settings to their default status.
- After the final test print, this executes a paper cut.
- After the command is processed, the printer enters a BUSY state.

GS (K pL pH n m

Name	Set print density							
Code	ASCII	GS	(	K	pL	pH	n	m
	Hex.	1D	28	4B	pL	pH	n	m
	Decimal	29	40	75	pL	pH	n	m

Defined Region {pL + (pH × 256) } = 2 (pL = 2, pH = 0)

n = 49

250 ≦ m ≦ 255, 0 ≦ m ≦ 6

Initial Value m = 0

Function Sets print density.

n	Print Density
250	0.7
251	0.7
252	0.8
253	0.8
254	0.9
255	0.9
0	1.0
1	1.1
2	1.1
3	1.2
4	1.2
5	1.3
6	1.3

STAR This command changes the print density after the test print is stopped.

GS (N pL pH n m

Name	Specify print color							
Code	ASCII	GS	(	N	pL	pH	n	m
	Hex.	1D	28	4E	pL	pH	n	m
	Decimal	29	40	78	pL	pH	n	m
Defined Region	{pL+ (pH×256) } = 2 (pL = 2,pH = 0)							
	n = 48							
	m = 49,50							
Initial Value	m = 49							
Function	Specifies print color in 2 color print mode.							

- This command is effective only when in 2 color printing in mode. This command is ignored with in single color printing mode.
- Use ESC @ to initial the print color (print color = black).

n	Print color
49	Black (High Energy)
50	Red (Low Energy)

GS / m

Name Print download bit images

Code

ASCII	GS	/	m
Hex.	1D	2F	m
Decimal	29	47	m

Defined Region $0 \leqq m \leqq 3, 48 \leqq m \leqq 51$

Function Prints defined download bit image data using mode m.

m	Print Mode	Density of Vertical Direction Dots	Density of Horizontal Direction Dots
0, 48	Normal Mode	180 DPI	180 DPI
1, 49	Double-wide Mode	180 DPI	90 DPI
2, 50	Double-tall Mode	90 DPI	180 DPI
3, 51	Quadruple Mode	90 DPI	90 DPI

Details

- This command is ignored if there is no download bit image data defined.
- This command is effective only when no data exists in the print buffer in standard mode.
- Excluding upside-down printing, print modes (emphasized printing, overlap printing, underlines, character sizes and black/white inverted printing) are unaffected.
- If there is download bit image data defined that exceeds the print region, that excess portion is not printed.
- This command feeds dots (for the height n of the NV bit image) in normal and double-width modes, and (for the height of the NV bit image n x 2) in double-height and quadruple modes, regardless of the line spacing specified by ESC 2 (Set default line spacing) or ESC 3 (Set line feed amount).
- See section 2.3.2 for details on the download bit image expansion position in page mode.

STAR

- Dot density (when the STAR printer head = 203 DPI) on STAR printers.

m	Mode	Density of Vertical Direction Dots	Density of Horizontal Direction Dots
0, 48	Normal Mode	203 DPI	203 DPI
1, 49	Double-wide Mode	203 DPI	101 DPI
2, 50	Double-tall Mode	101 DPI	203 DPI
3, 51	Quadruple Mode	101 DPI	101 DPI

Reference GS *

GS:

Name	Start/execute macro definition
Code	ASCII GS :
	Hex. 1D 3A
	Decimal 29 58
Function	Starts and stops macro definition.
Details	• If this command is input during normal operation, the macro definition is started.
	• If this command is input while defining a macro, the macro definition is stopped.
	• If GS ^ (Execute macro definition) is input while defining a macro, the macro definition is cancelled and the contents are cleared.
	• The initial status of the macro is undefined.
	• The contents of the definition are not cleared by ESC @ (Initialize printer).
	• The macro enters an undefined status if GS: is input immediately after inputting GS:.
	• The data count that can be defined in a macro is 2048 bytes. Data that exceeds 2048 bytes is not defined.
STAR	• Operators should be aware that if the raster graphic command (GS v) is inserted into the data while defining a macro, the macro definition is immediately ended as being undefined and the printer enters a raster graphics process.
Reference	GS ^

GS B n

Name	Specify/cancel white/black inverted printing			
Code	ASCII	GS	B	n
	Hex.	1D	42	n
	Decimal	29	66	n
Defined Region	0 ≦ n ≦ 255			
Initial Value	n = 0			

Function

Specifies or cancels black and white inverted printing.

- Cancels black and white inverted printing when n = <*******0>B.
- Specifies black and white inverted printing when n = <*******1>B.

Details

- n is effective only when it is the lowest bit.
- Internal characters and download characters are targeted for black and white inverted printing.
- The right space of set characters set by ESC SP (Set character right space amount) is also targeted for black and white inverted printing.
- The following are not targeted for black and white inverted printing.

a. ESC* : Bit image

b. GS / : Download bit image

c. GS k : Bar code

d. GS H : HRI Characters

e. HT : Skipped portion by horizontal tab

f. ESC $: Skipped portion by specification of vertical position

g. ESC \ : Skipped portion by specification of relative position

- This does not affect the line spacing.
- Black and white inverted printing has priority over underlines. Therefore, the inverted characters are not underlined, even if underline is specified. However, the underline setting status does not change.
- This command is effective for ANK and Chinese characters.

GS C 0 n m

Name: Set counter print mode

Code:

ASCII	GS	C	0	n	m
Hex.	1D	43	30	n	m
Decimal	29	67	48	n	m

Defined Region: $0 \leqq n \leqq 5$

$0 \leqq m \leqq 2, 48 \leqq m \leqq 50$

Initial Value: n = 0

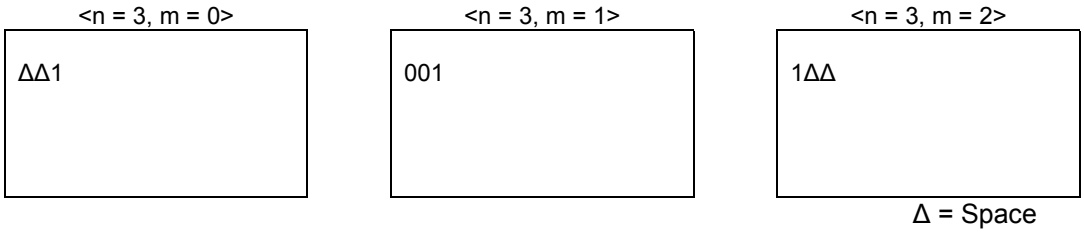
m = 0

Function: Sets the serial number counter print mode.

m	Printing Position	Processing of Counter Value Less than Set Digit Count
0, 48	Align Right	Applies a space to the left side
1, 49	Align Right	Applies a 0 to the left side
2, 50	Align Left	Applies a space to the right side

Details:

- n specifies the digits to print.
- When n = 0, the printer prints only the actual number of digits of the counter value.
- Sets the print digit count when n ≠ 0.
- m sets the serial number counter printing position in the set digit count.
- If the counter value is larger than the n set digit count, the printer prints n digits below the counter value.
- When n = 0, the value of m has no meaning.



Reference: GS C 1, GS C 2, GSC;, GS c

GS C 1 aL aH bL bH n r

Name	Set Counter Mode (A)									
Code	ASCII	GS	C	1	aL	aH	bL	bH	n	r
	Hex.	1D	43	31	aL	aH	bL	bH	n	r
	Decimal	29	67	49	aL	aH	bL	bH	n	r

Defined Region

$0 \leqq aL \leqq 255$

$0 \leqq aH \leqq 255$

$0 \leqq bL \leqq 255$

$0 \leqq bH \leqq 255$

$0 \leqq n \leqq 255$

$0 \leqq r \leqq 255$

Initial Value

aL = 1, aH = 0

bL = 255, bH = 255

n = 0

r = 1

Function

Sets the counter mode for the serial counter.

Details

- aL, aH and bL, bH specify the counter range.
- n specifies the number of steps to count up or down.
- r specifies the number of times to repeat printing with the counter value fixed.
- If {(aL + aH x 256) < (bL + bH x 256) and n ≠ 0 and r ≠ 0} this command sets the count up mode.
- If {(aL + aH x 256) > (bL + bH x 256) and n ≠ 0 and r ≠ 0} this command sets the count down mode.
- If {(aL + aH x 256) = (bL + bH x 256) and n = 0 and r = 0} this command stops counting.
- When the count up mode is set, (aL + aH x 256) is the counter minimum value and (bL + bH x 256) is the counter maximum value.

  Also, if the counter exceeds the maximum value, it starts counting up again from the minimum value.
- When the count down mode is set, (aL + aH x 256) is the counter maximum value and (bL + bH x 256) is the counter minimum value.

  Also, if the counter is smaller than the minimum value, it starts counting down again from the maximum value.
- Executing this command clears the internal counter that shows the number of times printing was repeated.

Reference

GS C 0, GS C 2, GS C ;, GS c

GS C 2 nL nH

Name	Set counter mode value					
Code	ASCII	GS	C	2	nL	nH
	Hex.	1D	43	32	nL	nH
	Decimal	29	67	50	nL	nH
Defined Region	0 ≦ nL ≦ 255					
	0 ≦ nH ≦ 255					
Initial Value	nL = 1, nH = 0					
Function	Sets the serial number counter value.					
Details	• nL and nH set the counter value.					
	• In the count up mode, if the counter value specified by this command goes out of the counter operating range, specified by GSC1 or GSC;, it is forced to convert to the minimum value by the next GSc.					
	• In the count down mode, if the counter value specified by this command goes out of the counter operating range, specified by GSC1 or GSC;, it is forced to convert to the maximum value by the next GSc.					
Reference	GS C 0, GS C 1, GS C ;, GS c					

GS C ; sa; sb; sn; sr; sc;

Name	Set Counter Mode (B)												
Code	ASCII	GS	C	;	sa	;	sb	;	sn	;	sr	;	sc	;
	Hex.	1D	43	3B	sa	3B	sb	3B	sn	3B	sr	3B	sc	3B
	Decimal	29	67	59	sa	59	sb	59	sn	59	sr	59	sc	59

Defined Region
"0" ≦ sa ≦ "65535"
"0" ≦ sb ≦ "65535"
"0" ≦ sn ≦ "255"
"0" ≦ sr ≦ "255"
"0" ≦ sc ≦ "65535"

Initial Value
sa = "1"
sb = "65535"
sn = "0"
sr = "1"
sc = "1"

Function
Sets the serial number counter counting mode and counter value.

Details
- sa, sb, sn, sr and sc are all ASCII character strings represent setting values using decimals. They are composed of character strings of 0 to 9.
- sa, and sb specify the counter range.
- sn specifies the number of steps to count up or down.
- sr specifies the number of times to repeat printing with the counter value fixed.
- sc specifies the counter value.
- If {sa < sb and sn ≠ 0 and sr ≠ 0} this command sets the count up mode.
- If {sa > sb and sn ≠ 0 and sr ≠ 0} this command sets the counter down mode.
- If {sa = sb or n = 0 and sr = 0} this command stops counting.
- When the count up mode is set, sa is the counter minimum value and sb is the counter maximum value.

  Also, if the counter exceeds the maximum value, it starts counting again from the minimum value.
- When the count down mode is set, sa is the counter maximum value and sb is the counter minimum value.

  Also, if the counter is smaller than the minimum value, it starts counting down again from the maximum value.
- Each argument from sa to sc can be omitted. The setting just prior is maintained without change to the setting value that corresponds to the omitted argument.
- Executing this command clears the internal counter that shows the number of times printing was repeated.
- If an argument outside of the definition region is input, the command is stopped and processing is handled normally from subsequent data.

Reference
GS C 0, GS C 1, GS C 2, GS c

GS E n

Name Set printing speed

Code

ASCII	GS	E	n
Hex.	1D	45	n
Decimal	29	69	n

Defined Region $0 \leqq n \leqq 255$

Initial Value n = 0

Function Sets print speed.

Bit	Function	"0"	"1"
7	Undefined	--	--
6	Undefined	--	--
5	Print Speed	(See table below)	
4			
3	Undefined	--	--
2	Undefined	--	--
1	Undefined	--	--
0	Undefined	--	--

Print Speed

Bit-5	Bit-4	Print Speed
0	0	High speed
0	1	Mid-speed
1	0	Slow speed
1	1	Undefined

Details
- This command is effective in standard mode.
- This command is enabled only when at the top of the line.

STAR
- This command changes the print density after the test print is stopped.

GS H n

Name: Select HRI character print position

Code:

ASCII	GS	H	n
Hex.	1D	48	n
Decimal	29	72	n

Defined Region: $0 \leqq n \leqq 3, 48 \leqq n \leqq 51$

Initial Value: n = 0

Function: Selects the printing position of HRI characters when printing bar codes.

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)

Details:
- HRI is an acronym for Human Readable Interpretation.
- HRI characters are printed with fonts selected by GS f (Select HRI character font).

Reference: GS f, GS k

GS I n

Name Transmission of Printer ID

Code

ASCII	GS	I	n
Hex.	1D	49	n
Decimal	29	73	n

Defined Region $1 \leqq n \leqq 3, 49 \leqq n \leqq 51, 65 \leqq n \leqq 69$

Function Sends the specified printer ID.

n	Printer ID Type	Specifications
1, 49	Model ID	TM-T88II = 0 x 20 BA-T500 = 0 x 27
2, 50	Type ID	(See table below)
3, 51	ROM Version ID	Depends on the ROM version
65	Firmware Version	Depends on the firmware version
66	Manufacturer Name	EPSON
67	Model Name	TM-T88II
68	Serial Number	Depends on the serial number
69	Chinese Character Types	Japanese Language Characters: KANJI JAPANESE Chinese Language Character Specifications: CHINAGB2312 Taiwan Language Characters: TAIWANBIG-5

<Type ID>

Bit	Status targeted for ASB	"0"	"1"
7	Fixed at "0"		
6	Undefined	---	---
5	Undefined	---	---
4	Fixed at "0"		
3	MICR Reader	None	Yes
2	Direct connection to customer display	None	Yes
1	Auto-cutter	None	Yes
0	2 Byte Code Handling	None	Yes

Details

- If using DTR/DSR control when using a serial interface, the printer sends its ID after it has verified that the host has entered a data ready state (the DSR signal is a space). If the host is not able to receive data (DSR signal is a mark), the printer will wait until it is ready.

  The using XON/XOFF control, the printer transmits its ID without verifying whether the host can receive data.

- Because this command is executed while expanding the print buffer, there may be a delay between the reception of the command and printer ID transmission, depending on the reception buffer status.
- ($1 \leqq n \leqq 3, 49 \leqq n \leqq 51$) sends 1 byte of the printer ID.
- When ASB is enabled using the GS a (enable/disable auto status transmission) command, the printer ID transmitted by this command and the ASB status must be differentiated. See Appendix-2 for details on how to identify.
- ($65 \leqq n \leqq 69$) sends the following printer information.

  Header: Hexadecimal = 5FH/Decimal = 95 (1 byte)

  Data: Printer Information

NUL: Hexadecimal = 00H/Decimal = 0 (1 byte)

• The following processes occur when preparations for transmitting data have been completed.

1. Executes a READY to BUSY process If the printer is already in a BUSY state, the printer does nothing.

2. Executes the [Header + Data + NUL] transmission

3. Executes a BUSY to READY process If the printer is already in a BUSY state for some other reason, it does nothing.

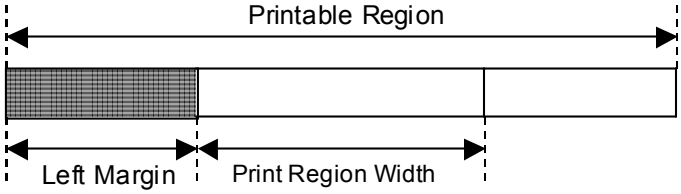
STAR STAR printers ignore this command if $65 \leqq n \leqq 69$ is specified.

Reference See Appendix -2 for details.

GS L nL nH

Name	Set left margin				
Code	ASCII	GS	L	nL	nH
	Hex.	1D	4C	nL	nH
	Decimal	29	76	nL	nH
Defined Region	0 ≦ nL ≦ 255				
	0 ≦ nH ≦ 255				
Initial Value	nL = 0,nH = 0				

Function
- nL and nH set the specified left margin.
- The left margin is [(nL + nH x 256) x basic calculated pitch]



Details
- This command is effective only when input at the top of the line when standard mode is being used.
- This command has no affect in page mode. This command is only effective for the setting.
- The maximum setting for the left margin is the same size as the printable region for the horizontal direction.

  Specifications that exceed the maximum value are rounded off to that value.
- The basic calculated pitch is set by GSP (Set basic calculated pitch). Also, after setting the left margin, it is not affected even if the basic calculated pitch is changed.
- Use the basic calculated pitch (x) for the horizontal direction of GS P (Set basic calculated pitch) to calculate the left margin.

  If the calculation results in fractions, the pitch is corrected to a minimal mechanical pitch and the rest is discarded.
- See Appendix-4 for setting details.

Reference GS P, GS W Appendix -4

GS P x y

Name	Set basic calculated pitch				
Code	ASCII	GS	P	x	y
	Hex.	1D	50	x	y
	Decimal	29	80	x	y

Defined Region

$0 \leqq x \leqq 255$

$0 \leqq y \leqq 255$

Initial Value

x = 180, y = 360: EPSON targeted model print head 180 DPI

x = 203, y = 203: EPSON targeted model print head 203 DPI

Function

Sets the horizontal basic calculated pitch to approximately 25.4/xmm [(1/x) inch], and the vertical basic calculated pitch to approximately 25.4/ymm [(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.

Details

- Horizontal direction refers to the vertical direction in reference to paper feed; Vertical direction refers to the direction of paper feed.
- With standard mode, use the parameters shown below regardless of the direction of the characters (upside down, or rotated 90 degrees).

  a. Commands using x: ESC SP, ESC $, ESC \, FSS, GSL, GSW

  b. Commands using y: ESC 3, ESC J, GSV

- With page mode, use the parameters shown below according to the direction of the characters.

  a. If the starting point is upper left or lower right using ESC T (Character print direction selection in page mode) (feeds paper and expands characters in the vertical direction):

  Commands using x: ESC SP, ESC $, ESCW, ESC \, FSS

  Commands using y: ESC3, ESCJ, ESCW, GS$, GS\, GSV

  b. If the starting point is upper right or lower left using ESC T (Character print direction selection in page mode) (expands characters in the paper feed direction):

  Commands using x: ESC 3, ESC J, ESCW, GS $, GS \

  Commands using y: ESC SP, ESC $, ESCW, ESC \, FSS, GSV

- This command has no affect on any previously set setting values.
- If the calculation combining other commands results in fractions, the pitch is corrected to a minimal mechanical pitch and the rest is discarded.

STAR • To improve differences in distance calculations that are generated from differences in print density of the print heads that are mounted (STAR = 203 DPI/EPSON = 180 DPI), STAR printers use a basic calculation pitch correction in its DIP switches. By setting this to 203 DPI, the printer uses the basic calculated pitches such as ESC$ (Move absolute position) or GSL (Left margin) to correct as shown below for the calculated values to enable distance movement that is similar to EPSON printers.

However, basic calculated pitch correction cannot correct data such as fonts or bit images.

• DIP Switch Settings: Basic Calculated Pitch Correction

ON = 203DPI (Default)

OFF = 180DPI

• Basic calculated pitch correction when the left margin is specified.

• Basic calculated pitch: XY

• Left margin value: nLnH

1.When basic calculated pitch correction selects 203 DPI

Left Margin = (nL + nH x 256) x 2032/X/10 (Decimals are discarded.)

2. When basic calculated pitch correction selects 180 DPI

Left Margin = (nL + nH x 256) x 180/X (Decimals are discarded.)

Reference ESC SP, ESC $, ESC 3, ESC J, ESC W, ESC \, GS $, GS L, GS V, GS W, GS \

GS T n

Name	Move to top of line			
Code	ASCII	GS	T	n
	Hex.	1D	54	n
	Decimal	29	84	n
Defined Region	n = 0,1,48,49			
Function	Moves print position to top of line.			

• This command is effective only in standard mode. It is ignored in page mode.

n	Function
0, 48	After erasing data in the printer buffer, it moves the print position.
1, 49	After printing data in the printer buffer, it moves the print position.

GS V m

Name Cut paper

Code

ASCII	GS	V	m
Hex.	1D	56	m
Decimal	29	86	m

Defined Region m = 0,1,48,49

Function Executes specified paper cut.

m	Function
0, 48	Full cut
1, 49	Partial cut (one point uncut)
2, 50	Not Used
3, 51	Not Used
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)
67	Not Used
68	Not Used

Details
- This command is effective only when processed at the top of the line when standard mode is being used.
- Cuts paper.

STAR
- The auto-cut function differs according to the model. A partial cut is executed on those models that cannot perform a full cut.

  A full cut is executed on those models that cannot perform a partial cut. Refer to the product specifications manual for the specifications of the auto-cut function.
- Models that do not have the auto-cut function do not cut paper. However, commands that accompany a paper feed of (cutting position + [n x basic calculated pitch]) (n = 65, 66), a paper feed of (tear bar position + [n x basic calculated pitch]) is executed.

Reference ESC i, ESC m

GS V m n

Name: Cut paper

Code:

ASCII	GS	V	m	n
Hex.	1D	56	m	n
Decimal	29	86	m	n

Defined Region: m = 65, 66, 0 ≦ n ≦ 255

Function: Executes specified paper cut.

m	Function
0, 48	Full cut
1, 49	Partial cut (one point uncut)
2, 50	Not Used
3, 51	Not Used
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)
67	Not Used
68	Not Used

Details:

- This command is effective only when processed at the top of the line when standard mode is being used.
- Feeds paper to the cutting position when n = 0, then cuts the paper.
- Feeds paper [n x basic calculated pitch] beyond the cutting position when n ≠ 0, then cuts the paper.
- The basic calculated pitch is set by GSP (Set basic calculated pitch).
- Use the basic calculated pitch (y) relating to the vertical direction for the paper feed amount.

  If the calculation results in fractions, the pitch is corrected to a minimal mechanical pitch and the rest is discarded.

STAR:

- The auto-cut function differs according to the model. A partial cut is executed on those models that cannot perform a full cut.

  A full cut is executed on those models that cannot perform a partial cut. Refer to the product specifications manual for the specifications of the auto-cut function.
- Models that do not have the auto-cut function do not cut paper. However, commands that accompany a paper feed of (cutting position + [n x basic calculated pitch]) (n = 65, 66), a paper feed of (tear bar position + [n x basic calculated pitch]) is executed.

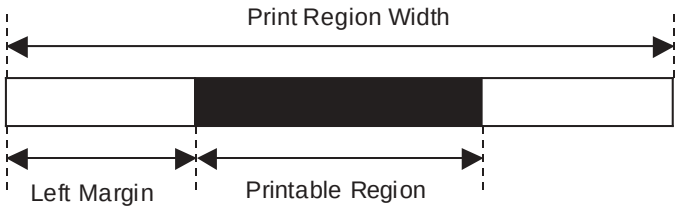
Reference: ESC i, ESC m

GS W nL nH

Name	Set print region width				
Code	ASCII	GS	W	nL	nH
	Hex.	1D	57	nL	nH
	Decimal	29	87	nL	nH
Defined Region	0 ≦ nL ≦ 255				
	0 ≦ nH ≦ 255				
Initial Value	See the STAR section below.				

Function

- Sets the print region width specified by nL and nH.
- Print region width is [(nL + nH x 256) x basic calculated pitch].



Details

- This command is effective only when processed at the top of the line when standard mode is being used.
- This command has no affect on page mode when in page mode. Only the setting is effective for this command.
- When a value that exceeds the printable region of one line, the entire region, excluding the left margin, is set as the print region width.
- The basic calculated pitch is set by GSP (Set basic calculated pitch). Also, the set printing region width is not changed even if the basic calculated pitch is changed after setting the print region width.
- Use the basic calculated pitch (x) for the horizontal direction of GS P (Set basic calculated pitch) to calculate the print region width.

  If the calculation results in fractions, the pitch is corrected to a minimal mechanical pitch and the rest is discarded.
- If the print region width is smaller than the width of the first character expanded at the top of the line (including the right space), the following are processed only on that line.

  1. The print region is expanded to the right for the size of that character within the range that does not exceed the printable region.
  2. If there is not enough space even if 1. is executed, the print region is expanded to the left side.
  3. If there is not enough space even if 2. is executed, the right space deleted.
- See Appendix-4 for setting details.

Reference GS L, GS P, Appendix -4

GS \ nL nH

Name	Specify relative position for character vertical direction in page mode
Code	ASCII GS \ nL nH Hex. 1D 5C nL nH Decimal 29 92 nL nH
Defined Region	0 ≦ nL ≦ 255 0 ≦ nH ≦ 255
Function	• Specifies the character vertical direction position for the data expansion starting position using the relative position based on the current point in page mode. This sets the position moved from the current position to [(nL + nH x 256) x basic calculated pitch] for the next data expanding starting position.
Details	• When not in page mode, this command is ignored. • If the direction below the current position is specified for the characters, specify a positive number; if the direction above is specified, a negative number is used. • Negative numbers are represented by the complement of 65536. For example, when moving in the upward direction N pitches, use: nL + nH × 256 = 65536-N • Specifications for relative positions that exceed the specified print region are ignored. • The following operations occur depending on ESC T (Selecting the character printing direction in page mode). a. If the starting point is upper left or lower right, specify the relative position for the paper feed direction. Use the basic calculated pitch (y) for the horizontal direction at this time. b. If the starting point is upper right or lower left, specify the relative position for the paper feed in the vertical direction. Use the basic calculated pitch (x) for the horizontal direction at this time. • The basic calculated pitch is set by GSP (Set basic calculated pitch). • If the calculation results in fractions, the pitch is corrected to a minimal mechanical pitch and the rest is discarded.
Reference	ESC $, ESC T, ESC W, ESC \, GS $, GS P

GS ^ r t m

Name	Execute macro					
Code	ASCII	GS	^	r	t	m
	Hex.	1D	5E	r	t	m
	Decimal	29	94	r	t	m

Defined Region

$0 \leqq r \leqq 255$

$0 \leqq t \leqq 255$

$0 \leqq m \leqq 1$

Function

- Executes a defined macro.

  r specifies the number of times to execute the macro.

  t specifies the time to wait when executing the macro.

  m specifies the macro execution mode.

  m = 0: Executes the macro continuously the r number of times while interposing time gaps specified by t.

  m = 1: After an amount of time specified by t, the POWER LED flashes and waits for the paper feed switch to be pressed.

  The macro is executed once when the paper feed switch is pressed.

  This operation is repeated the number of times specified by r.

Details

- After executing a macro once, the printer waits approximately (t x 100 m) sec according to that specified by t.
- When processing this command while defining a macro, the macro definition is terminated and the contents of the definition are cleared.
- When a macro is undefined, and r = 0, this command is ignored.
- When m = 1, paper is not fed using the paper feed switch while the macro is being executed.

STAR

- If a raster graphic command (GS v) is received while executing a macro on a printer equipped with a parallel interface, the user should be aware that the printer will enter a BUSY state.

Reference GS :

GS a n

Name Enable/disable transmission of automatic status

Code

ASCII	GS	a	n
Hex.	1D	61	n
Decimal	29	97	n

Defined Region $0 \leqq n \leqq 255$

Initial Value DIPSW “When automatic status function is disabled”: n = 0

DIPSW “When automatic status function is enabled”: n = 2

Function • 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

Details • If any status is effective, it is sent when this command is executed.

Statuses that are enabled later are sent when they change. At this time, the current status is represented. Even if the status is not targeted for ASB (Automatic Status Back), there can be changes to that status.

• If all statuses are disabled, the ASB (Automatic Status Back) function is disabled.

• If the ASB is enabled in default status, the status is sent when communications are ready after turning on the power.

• The printer transmits statuses in the following 4 bytes without confirming whether the host computer can receive data.

It always sends 4 byte statuses consecutively, except for the XOFF code.

• Because this command is executed while expanding the reception buffer, there may be a delay between the reception of the command and the status transmission, depending on the reception buffer status.

• Even if the printer specification is cancelled by ESC = (Select peripheral devices), 4 byte status is sent when there is a change in the status.

• If using DLE EOT (Real-time status transmission), GS I (Printer ID transmission), or GS r (Transmission of status), it is necessary to identify the statuses using these commands and the status of ASB.

• See Appendix-2 for details on statuses.

Reference DLE EOT, GS r, Appendix-2

GS b n

Name	Specify/cancel smoothing			
Code	ASCII	GS	b	n
	Hex.	1D	62	n
	Decimal	29	98	n
Defined Region	0 ≦ n ≦ 255			
Initial Value	n = 0			
Function	Specifies or cancels smoothing.			
	• Cancels smoothing when n = <*******0>B.			
	• Specifies smoothing when n = <*******1>B.			
Details	• n is effective only when it is the lowest bit.			
	• Targets for smoothing are: embedded characters, download characters and external characters			
	• Even if smoothing is specified, it will not be performed if the character is set for magnification in either the vertical or horizontal directions.			
STAR	STAR printers ignore this command (3 bytes are discarded).			
Reference	ESC !, GS !			

GS c

Name	Print counter		
Code	ASCII	GS	c
	Hex.	1D	63
	Decimal	29	99

Function

After expanding the current serial counter value as print data (a character string) to the print buffer, the printer counts up or counts down according to the count mode.

Details

- The counter value expanded to the print buffer the printer prints by either the print instruction or by a print buffer full.
- The counter print mode is set by GS C 0.
- The counter mode is set by GS C 1, or GS C ;.
- In the count up mode, if the counter value specified by this command goes out of the counter operating range, specified by GSC1 or GSC;, it is forced to convert to the minimum value by the execution of this command.
- In the count down mode, if the counter value specified by this command goes out of the counter operating range, specified by GSC1 or GSC;, it is forced to convert to the maximum value by the execution of this command.

Reference

GS C 0, GS C 1, GS 2, GS C ;

GS f n

Name	Select HRI character font
Code	ASCII GS f n Hex. 1D 66 n Decimal 29 102 n
Defined Region	n = 0,1,48,49
Initial Value	n = 0
Function	Selects the printing position of HRI character font when printing bar codes.

n	Font
0, 48	Selects Font A (12 x 24).
1, 49	Selects Font B (9 x 17).

Details
- HRI is an acronym for Human Readable Interpretation.
- HRI characters are printed in a position specified GS H (Select HRI character print position).

STAR The following are the HRI character font configurations on STAR printers.

Character Fonts	Horizontal Dots x Vertical Dots
Font A	12 x 24 Dots
Font B	9 x 24 Dots

Reference GS H, GS k

GS h n

Name	Set bar code height			
Code	ASCII	GS	h	n
	Hex.	1D	68	n
	Decimal	29	104	n
Defined Region	1 ≦ n ≦ 255			
Initial Value	n = 162			
Function	Sets bar code height to n dots.			
Reference	GS k			

1. GS k m d1 … dk NUL, 2. GS k m n d1 … dk

Name Print bar code

Code

1. ASCII	GS	k	md1...dk	NUL
Hex.	1D	6B	md1...dk	NUL
Decimal	29	107	md1...dk	NUL
2. ASCII	GS	k	m	nd1...dk
Hex.	1D	6B	m	nd1...dk
Decimal	29	107	m	nd1...dk

Defined Region

1. $0 \leq m \leq 6$ The definition region of k and d differ according to the bar code type.
2. $65 \leq m \leq 73$ The definition region of n and d differ according to the bar code type.

Function Selects bar code type and prints bar codes.

For 1:

m	Bar Code Type	Defined region of k	Defined region of d
0	UPC-A	$11 \leq k \leq 12$	$48 \leq d \leq 57$
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	$1 \leq k$	$48 \leq d \leq 57$, $65 \leq d \leq 90$, 32, 36, 37, 43, 45, 46, 47
5	ITF	$2 \leq k$ (However, this is an even number.)	$48 \leq d \leq 57$
6	CODABAR	$1 \leq k$	$48 \leq d \leq 57$, $65 \leq d \leq 68$, 36, 43, 45, 46, 47, 58

For 2:

m	Bar Code Type	Defined region of n	Defined region of d
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	$2 \leq n \leq 255$ (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	$2 \leq n \leq 255$	$0 \leq d \leq 127$

Details For 1:

- This command is quit by the NULL code.
- For UPC-A and UPC-E, a bar code is printed when 12 bytes of bar code data are input. Subsequent data is processed as normal data.
- For JAN13 (EAN13), a bar code is printed when 13 bytes of bar code data are input. Subsequent data is processed as normal data.
- For JAN8 (EAN8), a bar code is printed when 8 bytes of bar code data are input. Subsequent data

is processed as normal data.

- The data count for ITF bar codes is always even numbered. If the data count is odd numbered, the last data is ignored.

For 2:

- n specifies the data count. n bytes from the next data is processed as bar code data.
- If n is outside of the defined region, the command is stopped and normal printing commences from subsequent data.

When in standard mode:

- If d is outside of the defined region, only a paper feed is executed and normal printing commences from subsequent data.
- If the horizontal width of the bar code exceeds the print region of one line, the paper is fed without printing the bar code.
- Executes a paper feed for the height of the bar code (including HRI characters when HRI character printing is specified) regardless of the line feed amount using the following commands.

a. ESC 2: Set default line spacing

b. ESC 3: Set line feed amount

- This command is effective only when no data exists in the print buffer. If there is data in the print buffer, data after m is printed as normal data.
- Sets the next print position to the beginning of the next line after printing the bar code.
- Excluding upside-down printing, print modes (emphasized printing, double printing, underlines, character sizes) are unaffected.

When in page mode:

- Executes only a bar code expansion but does not print it. After expanding the bar code, the next dot after the last data of the bar code is the starting position for the expansion of subsequent data.
- If d is outside of the defined region, the command is stopped and normal printing commences from subsequent data. The position for starting data expansion does not move.
- If the horizontal width of the bar code exceeds the print region of one line, the data expansion starting position is moved to the left side outside the printing region without printing the bar code.

<When using CODE 93 bar code (m = 72)>

• Prints an HRI character (□) of the start characters at the top of the HRI character string.

• Prints an HRI character (□) of the end characters at the top of the HRI character string.

• Prints HRI characters of the control characters (00H to 1FH and 7FH) combining (■) and one letter of the alphabet.

Control Characters			HRI	Control Characters			HRI
ASCII	Hex.	Decimal	Characters	ASCII	Hex.	Decimal	Characters
NUL	00	0	■U	DLE	10	16	■P
SOH	01	1	■A	DC1	11	17	■Q
STX	02	2	■B	DC2	12	18	■R
ETX	03	3	■C	DC3	13	19	■S
EOT	04	4	■D	DC4	14	20	■T
ENQ	05	5	■E	NAK	15	21	■U
ACK	06	6	■F	SYN	16	22	■V
BEL	07	7	■G	ETB	17	23	■W
BS	08	8	■H	CAN	18	24	■X
HT	09	9	■I	EM	19	25	■Y
LF	0A	10	■J	SUB	1A	26	■Z
VT	0B	11	■K	ESC	1B	27	■A
FF	0C	12	■L	FS	1C	28	■B
CR	0D	13	■M	GS	1D	29	■C
SO	0E	14	■N	RS	1E	30	■D
SI	0F	15	■O	US	1F	31	■E
				DEL	7F	127	■T

<When using CODE 128 bar code (m = 73)>

• See Appendix-6 for details on CODE 128 bar codes and code tables.

• To print CODE 128 bar codes on this printer, be careful of the following points to send the bar code data.

a. At the top of the bar code string, always set the code set selection characters (either of the CODE A, CODE B, or CODE C) to select the initial code set.

b. Specify special characters using the two characters of '{' and one subsequent character. Also, the '{' of the ASCII characters are specified by sending '{' for two characters consecutively.

Special Characters	Transmission Data		
	ASCII	Hexadecimal	Decimal
SHIFT	{S	7B, 53	123, 83
CODE A	{A	7B, 41	123, 65
CODE B	{B	7B, 42	123, 66
CODE C	{C	7B, 43	123, 67
FNC1	{1	7B, 31	123, 49
FNC2	{2	7B, 32	123, 50
FNC3	{3	7B, 33	123, 51
FNC4	{4	7B, 34	123, 52
'{'	{{	7B, 7B	123, 123

• If the top of the bar code data string is not a code set selection character, the command is stopped and processing is handled normally from subsequent data.

• If the combination of '{' and 1 character immediately after does not conform to either of the special characters, the command is stopped and processing is handled normally from subsequent data.

• If a character that cannot be used with the selected code set is received, the command is stopped and processing is handled normally from subsequent data.

- HRI characters that correspond to shift characters and code set selection characters are not printed.
- HRI characters of function characters are printed with a space.
- HRI characters of the control characters (00H to 1FH and 7FH) are printed with a space.

STAR

- If printing bar codes that require check digits on STAR printers, even if the check digit is sent as a bar code, the check digit that was calculated on the printer is printed.

Reference GS H, GS f, GS h, GS w, Appendix-6

GS r n

Name Transmission of status

Code ASCII GS r n

Hex. 1D 72 n

Decimal 29 114 n

Defined Region n = 1, 2, 49, 50

Function Sends the specified status.

- n = 1, 49: Sends paper detector status
- n = 2, 50: Sends the drawer kick connector status.

Details
- When using a serial interface:
- When in DTR/DSR control: Sends the status after checking that the host can received data.

  If the host is not able to receive data, it waits until reception is possible.
- When in XON/XOFF control: The printer transmits statuses without confirming whether the host computer can receive data.
- Because this command is executed while expanding the reception buffer, there may be a delay between the reception of the command and the status transmission, depending on the reception buffer status.
- When ASB is enabled using the GS a (enable/disable auto status transmission) command, the status transmitted by this command and the ASB status must be differentiated. See Appendix-2 for details on how to identify.

Detector Status (n = 1, 49)

Bit	Status	"0"	"1"
7	Fixed at "0"		
6	Undefined	---	---
5	Undefined	---	---
4	Fixed at "0"		
3	Paper roll end detector	Has Paper	Paper out
2	Paper roll end detector	Has Paper	Paper out
1	Paper roll near end detector	Has Paper	Paper out
0	Paper roll near end detector	Has Paper	Paper out

Bit-2,3: If the end detector shows there is no paper, the printer will always go offline, so this command is not executed. Therefore, the status of bit - 2 = 1 or bit – 3 = 1 is not sent.

Drawer Kick Connector Status (n = 2, 50)

Bit	Status	"0"	"1"
7	Fixed at "0"		
6	Undefined	---	---
5	Undefined	---	---
4	Fixed at "0"		
3	Undefined	---	---
2	Undefined	---	---
1	Undefined	---	---
0	Drawer kick connector pin #3	"L"	"H"

Reference DLE EOT, GS a, Appendix-2

GS v 0 m xL Hy yL yH d1 … dk

Name: Print raster bit images

Code:

ASCII	GS	v	0	m	xL	xH	yL	yHd1...dk
Hex.	1D	76	0	m	xL	xH	yL	yHd1...dk
Decimal	29	118	0	m	xL	xH	yL	yHd1...dk

Defined Region:

$0 \leqq m \leqq 3, 48 \leqq m \leqq 51$

$0 \leqq xL \leqq 255$

$0 \leqq xH \leqq 255$

$0 \leqq yL \leqq 255$

$0 \leqq yH \leqq 8$

$0 \leqq d \leqq 255$

$k = (xL+xH\times256) \times (yL+yH\times256)$ However, $k \neq 0$

Function: Prints raster method bit images using mode m.

m	Mode	Density of Vert. Dir. Dots	Density of Hor. Dir. Dots
0, 48	Normal Mode	180 DPI	180 DPI
1, 49	Double-wide Mode	180 DPI	90 DPI
2, 50	Double-tall Mode	90 DPI	180 DPI
3, 51	Quadruple Mode	90 DPI	90 DPI

- xL and xH specify the horizontal direction data count for one bit image (xL + xH x 256) in bytes.
- yL and yH specify the vertical direction data count for one bit image (yL + yH x 256) in bytes.

Details

- This command is effective only when there is no print data in the print buffer when standard mode is selected.
- Print modes (character size, enhanced characters, duplicated characters, upside down, unline, black/white inverted, etc.) do not affect raster bit images.
- Data not in the print region is discarded in dot increments.
- It is possible to specify any position to start printing raster bit images according to HT (Horizontal tab), ESC $ (Specify absolute position), ESC \ (Specify relative position) and GS L (Specify let margin). However, if the print starting position is no a multiple of 8, printing speed will decrease.
- ESC a (Position alignment) settings are effective also for raster bit images.
- When executing this command while defining a macro, the macro definition is terminated and the command commences with processing.

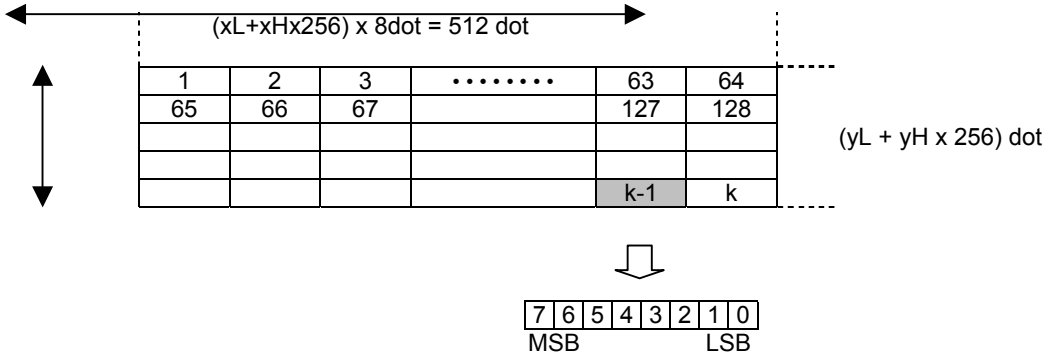
  The macro during this time is undefined.
- d specifies defined data.
- Bits that correspond to the dots to print are 1, and the bits that correspond to the dots that are not printed are 0.

STAR

- On STAR printers, the ACK pulse width when using a parallel interface is fixed at 1 µsec.
- When in page mode, transmission of this command is prohibited. If sent, the results of the print are not guaranteed.
- Dot density (when the STAR printer head = 203 DPI) on STAR printers.

m	Mode	Density of Vert. Dir. Dots	Density of Hor. Dir. Dots
0, 48	Normal Mode	203 DPI	203 DPI
1, 49	Double-wide Mode	203 DPI	101 DPI
2, 50	Double-tall Mode	101 DPI	203 DPI
3, 51	Quadruple Mode	101 DPI	101 DPI

[Ex.:] When xL + xH × 256 = 64



GS w n

Name Set bar code horizontal size

Code

ASCII	GS	w	n
Hex.	1D	77	n
Decimal	29	119	n

Defined Region $1 \leqq n \leqq 6$

Initial Value n = 3

Function 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

Details
- Multi-level bar codes specify the follow bar code types.

  UPC-A, UPC-E, JAN13 (EAN13), JAN8 (EAN8), CODE 93, CODE 128
- Binary level bar codes specify the follow bar code types.

  CODE39, ITF, CODABAR

STAR
- The bar codes that are printed do not conform to each standard, so you should confirm before actual use.

  Particularly, if n = 1 is specified, the bar code is not guaranteed.
- The following are the module widths on STAR printers.

n	Multi-level Bar Code Module Width [mm]	Binary Level Bar Code	
		Fine Element Width [mm]	Thick Element Width [mm]
1	0125	0.125	0.375
2	0.25	0.25	0.625
3	0.375	0.375	1.125
4	0.5	0.5	1.375
5	0.625	0.625	1.75
6	0.75	0.75	2.25

Reference GS k

4-3-2 Chinese Character Control Commands

Chinese character control commands are ignored by models shipped to single-byte countries. All Chinese character control commands are ignored if the specification for the location of use is specified as SBCS (single byte countries) by the memory switch.

FS ! n

Name: Batch specify Chinese character print mode

Code:

ASCII	FS	!	n
Hex.	1C	21	n
Decimal	28	33	n

Defined Region: $0 \leqq n \leqq 255$

Initial Value: n = 0

Function: Batch specifies the Chinese character print mode

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	---	---

Details:

- Quadruple-size characters are printed by specifying both double-tall and double-wide modes.
- An underline is applied to Chinese characters for the entire character width, including the FS S (left and right character space amount).

  However, underlines are not applied to portions that have been skipped using HT (horizontal tab) or rotated 90 degrees.
- The width of the Chinese character underline is set by FS - (specify Chinese character underline) regardless of the character size.
- The base line for characters is the same when there are characters having different vertical direction ratios in the same line.
- Chinese character size can be specified by FS W and GS !, but the last executed command is effective.
- Chinese character underline is specified and cancelled by FS -, but the last executed command is effective.

STAR:

- This command is ignored when the memory switch location of use is specified as SBCS (single byte countries).

Reference: FS -, FS W, GS !

FS &

Name Specify Chinese character mode

Code ASCII FS &

Hex. 1C 26

Decimal 28 38

Function Specifies Chinese characters mode.

Details
- Japanese Language Character Specifications
- Chinese characters mode specification using this command is enabled only when using JIS codes.
- If the Chinese characters mode is specified, all character codes are handled as 2 byte Chinese character codes.
- Chinese character codes are processed in the order first byte, second byte.
- Chinese character mode is cancelled as the default setting.
- It is possible to select the Chinese character code type using FS C.
- Chinese Language Character Specifications
- If Chinese character mode is specified, the first byte that follows processing of the character code equivalent to the first byte of the Chinese character code is processed as the second byte of the Chinese character code.
- Chinese character codes are processed in the order first byte, second byte.
- Chinese character mode is specified as the default setting.

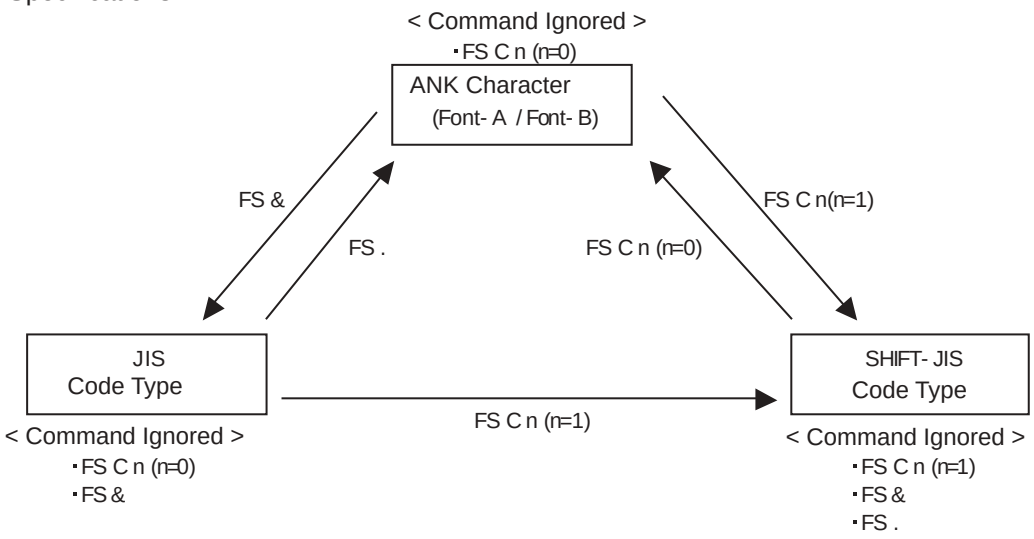
STAR
- This command is ignored when the memory switch location of use is specified as SBCS (single byte countries).
- ANK adornment commands are possible for Chinese character enhancement (ESC E) and black/white inversion (GS B) However, if the Chinese character is enlarged over three times, enhancement is ignored. Enhancement of Chinese characters is also ignored for those characters rotated 90 degrees to the right (ESC V)
- The following shows the 2 byte code defined area.

Specifications	Defined Area	
	Upper Bytes	Lower Bytes
Japanese Characters JIS Type	0x21 to 0x7E	0x21 to 0x7E
Japanese Characters/Shift JIS Type	0x81 to 0x9F 0xE0 to 0xEF	0x40 to 0xFE
Chinese characters	0xA1 to 0xFD	0xA1 to FE (*)

(*) Bit – 7 of the lower bytes of the Chinese characters is always processed as MASK (0xA1A1 → 0xA121)

Reference FS., FS C

Japanese Kanji
Specifications



Chinese Kanji
Specifications

FS – n

Name: Specify/cancel Chinese character underline

Code:

ASCII	FS	-	n
Hex.	1C	2D	n
Decimal	28	45	n

Defined Region: $0 \leqq n \leqq 2$, $48 \leqq n \leqq 50$

Initial Value: n = 0

Function: Specifies or cancels Chinese character underlines.

n	Function
0, 48	Cancels Chinese character underline
1, 49	Sets to one-dot width Chinese character underline and specifies Chinese character underlines.
2, 50	Sets to two-dot width Chinese character underline and cancels Chinese character underlines.

Details:

- An underline is applied to Chinese characters for the entire character width, including the left and right character space amount.

  However, underlines are not applied to portions that have been skipped using HT (horizontal tab) or rotated 90 degrees to the right.
- When Chinese character underline mode is cancelled by setting the value of n to 0, subsequent Chinese character data is not underlined, and the underline thickness set before the mode is turned off is maintained.

  In default, the underline width for Chinese characters is set to 1 dot.
- The set Chinese character underline width is the constant specified thickness regardless of the size of the character.
- The FS ! (Batch specify Chinese character print mode) command can also turn Chinese character underline mode on or off, but the setting of the last received command is effective.

STAR:

- This command is ignored when the memory switch location of use is specified as SBCS (single byte countries).
- The underline for Chinese characters is applied in the following positions.
- 1-dot width underline → 24^{th} dot
- 2-dot thickness underline → 23^{rd} and 24^{th} dot

Reference: FS !

FS .

Name	Cancel Chinese character mode
Code	ASCII FS .
	Hex. 1C 2E
	Decimal 28 46
Function	Cancels Chinese characters mode.
Details	• Japanese Language Character Specifications
	• Chinese characters mode specification using this command is cancelled only when using JIS codes.
	• If the Chinese character mode is specified, all character codes are handled as 1 byte ASCII codes.
	• Chinese character mode is cancelled as the default setting.
	• Chinese Language Character Specifications
	• If the Chinese character mode is specified, all character codes are handled as 1 byte ASCII codes.
	• Chinese character mode is specified as the default setting.
STAR	• This command is ignored when the memory switch location of use is specified as SBCS (single byte countries).
Reference	FS &, FS C

FS 2 c1 c2 d1 … dk

Name Define external character

Code

ASCII	FS	2	c1	c2d1...dk
Hex.	1C	32	c1	c2d1...dk
Decimal	28	50	c1	c2d1...dk

Defined Region

• c1 and c2 differ according to specifications and code type. See below.

Specifications	c1	c2
Japanese Character Specifications (JIS code type)	c1=77H	21H ≦ c2 ≦ 7EH
Japanese Character Specifications (SHIFT-JIS code type)	c1=ECH	40H ≦ c2 ≦ 7EH 80H ≦ c2 ≦ 9EH
Chinese Language Character Specifications	c1=FEH	A1H ≦ c2 ≦ FEH

• $0 \leqq d \leqq 255$

• k = 72

Initial Value All spaces

Function Defines the external character pattern of the Chinese character to a character code specified by c1 and c2.

Details

• c1 and c2 indicate the Chinese character code that defines the external character; c1 is the first byte; c2 is the second byte.

• d specifies defined data. Bits that correspond to the dots to print are 1, and the bits that correspond to the dots that are not printed are 0.

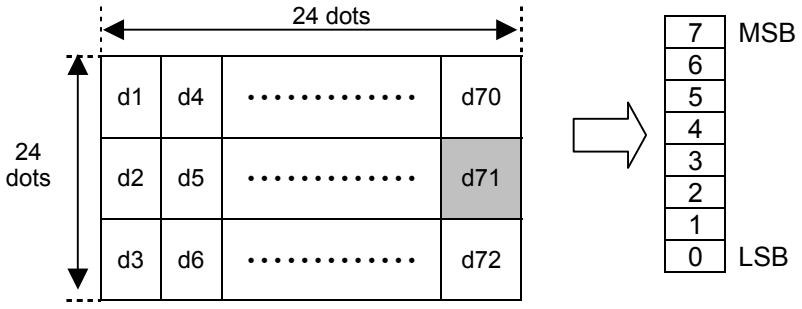
• Defined data is cleared by ESC @.

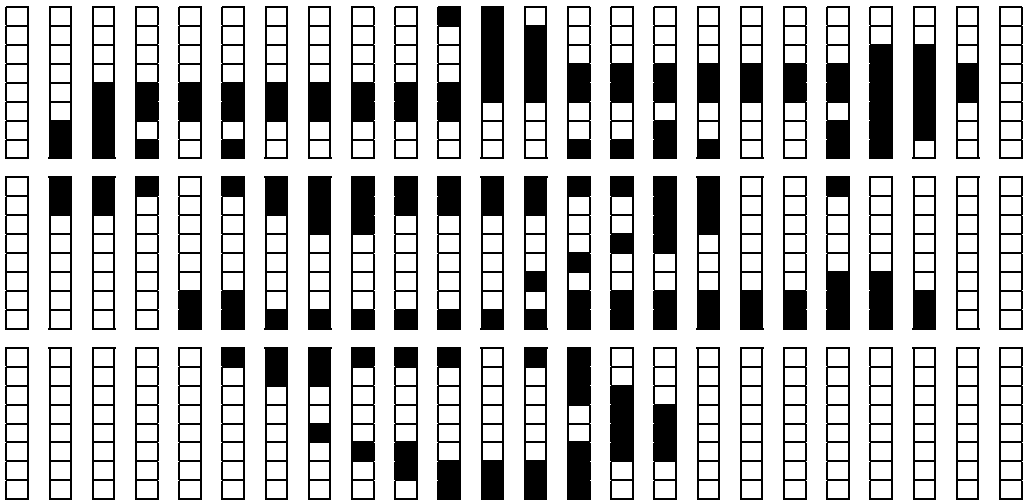
STAR

• This command is ignored when the memory switch location of use is specified as SBCS (single byte countries).

• External character registration of JIS codes and SHIFT-JIS codes for Japanese characters uses the same region.

Reference FS C





d1 = <00>H	d4 = <03>H	d7 = <0F>H	d10 = <0D>H	d13 = <0C>H	d16 = <0D>H • • •
d2 = <00>H	d5 = <0C>H	d8 = <0C>H	d11 = <80>H	d14 = <03>H	d17 = <83>H • • •
d3 = <00>H	d6 = <00>H	d9 = <00>H	d12 = <00>H	d15 = <00>H	d18 = <80>H • • •

FS C n

Name: Select Chinese character code type

Code:

ASCII	FS	C	n
Hex.	1C	43	n
Decimal	28	67	n

Defined Region: n = 0, 1, 48, 49

Initial Value: n = 0

Function: Selects the Chinese character code type.

n	Selection
0, 48	JIS Code Type
1, 49	SHIFT-JIS Code Type

Details:

- If using the JIS code type, the Chinese characters codes below are effective. This command is enabled only when using Japanese language specifications.

  First Byte: <21>H to <7E>H

  Second Byte: <21>H to <7E>H

- If using the SHIFT-JIS code type, the Chinese characters codes below are effective.

  First Byte: <81>H to <9F>H and <E0>H to <EF>H

  Second Byte: <40>H to <7E>H and <80>H to <FC>H

STAR:

- This command is ignored when the memory switch location of use is specified as SBCS (single byte countries).

FS S n1 n2

Name	Set Chinese character space amount				
Code	ASCII	FS	S	n1	n2
	Hex.	1C	53	n1	n2
	Decimal	28	83	n1	n2

Defined Region
$0 \leqq n1 \leqq 255$
$0 \leqq n2 \leqq 255$

Initial Value
n1 = 0,n2 = 0

Function
Sets the Chinese character space amount and right space amount.
- Left space amount: n1 x (basic calculated pitch)
- Right space amount: n2 x (basic calculated pitch)

Details
- The space amount set by this command is the amount when using standard sized characters.

  When expanding characters more than double in the horizontal direction, the space amount is [set amount x horizontal direction magnification].
- Space amount can be set independently for both the standard and page modes.
- The basic calculated pitch is set by GSP (Set basic calculated pitch). Also, after setting the Chinese character space amount, it is not affected even if the basic calculated pitch is changed.
- If there are fractions in the result, correct to the minimum mechanical pitch and discard.
- Use the basic calculated pitch (x) for the horizontal direction in standard mode.
- In page mode, the basic calculated pitch that is used according to the starting point is shown below.

a. When the starting point is specified to be upper left or lower right by the ESC T command (Character print direction selection in page mode), the basic calculated pitch (x) for the horizontal direction is used.

b. When the starting point is specified to be upper right or lower left by the ESC T command, the basic calculated pitch (y) for the vertical direction is used.

c. The maximum value for the left or right space for Chinese characters is approximately 35.893 mm (255/180 inches). Specifications that exceed the maximum value are rounded off to that value.

STAR
- This command is ignored when the memory switch location of use is specified as SBCS (single byte countries).

Reference
GSP

FS W n

Name	Specify/cancel double-tall, double wide Chinese characters			
Code	ASCII	FS	W	n
	Hex.	1C	57	n
	Decimal	28	87	n
Defined Region	0 ≦ n ≦ 255			
Initial Value	n = 0			
Function	Specifies or cancels quadruple size Chinese characters.			
	• Cancels quadruple size when n = <*******0>B.			
	• Specifies quadruple size when n = <*******1>B.			
Details	• n is effective only when it is the lowest bit.			
	• Quadruple size characters are those characters that have both vertical and horizontal directions expanded simultaneously.			
	• If quadruple size is cancelled using this command, the next Chinese character data is printed at normal size.			
	• The base line for characters is the same when there are characters having different vertical direction ratios in the same line.			
	• The FS ! (Batch specify Chinese character print mode) command or GS ! (Specify character size) can also specify the Chinese character size, but the setting of the last received command is effective.			
STAR	• This command is ignored when the memory switch location of use is specified as SBCS (single byte countries).			
Reference	FS!, GS!			

4-3-3 ESC/POS Black Mark Commands

ESC/POS black mark related commands are to control the top of form (black mark) functions. These commands are effective only when the black mark function is valid.

<Black mark specifications>

1. Top of form (black mark detection) operation

A. Selectable when power is turned on (when a reset signal is input), when a self-print test is completed, when the cover is closed and by the memory switch.

Memory Switch Setting	When power is turned on (reset signal is input) When self-print test is completed	When the cover is closed
(1)	Hold	Top of Form (black mark detection) + Cut
(2)	Top of Form (black mark detection)	Top of Form (black mark detection)
(3)	Top of Form (black mark detection) + Cut	Top of Form (black mark detection) + Cut

B. When the Feed switch is pressed

Performs Top of Form (black mark detection) operation

C. Command

See the following command details.

2 Black Mark Errors

A. Black mark error is entered

• When white detection is detected continuously over 400mm when feeding paper – A black mark error occurs

• When black detection is detected continuously over 9mm when feeding paper – A paper out error occurs

(On models that dually use paper out sensor for the black mark sensor, the error is a paper out error.)

B. Operations during a black mark error

• Error LED flashes

• Feed switch is invalid

• Only the following commands are invalid. Other commands are ignored.

DLE EOT n: Real-time Status Command

DLE ENQ n: Real-time Request Command (Black Mark Error Cancel Command)

• ASB Status is valid.

C. How to cancel a black mark error

• Turn power on again (reset signal is input)

• Real-time request command (Black mark error cancel command) DLE ENQ n cancel the error.

FF

Name	Print and recover to page mode
Code	ASCII FF Hex. 0C Decimal 12
Function	• When in page mode, this prints all buffered data to the print region collectively, then recovers to the standard mode. • In standard mode, this prints the data in the print buffer and feeds paper to the TOF position (the black mark).
Details	• In page mode, all buffer data is deleted after printing. • In page mode, the print area set by ESCW (Set print region in page mode) is reset to the default setting. • In page mode, no paper cut is executed. • In page mode, this sets the print position to the beginning of the next line after execution.
STAR	• The TOF position (black mark) varies according to the paper used and to customer specifications.
Reference	ESC FF, ESC L, ESC S

DLE ENQ n

Name	Real-time request to printer			
Code	ASCII	DLE	ENQ	n
	Hex.	10	05	n
	Decimal	16	5	n

Defined Region $1 \leqq n \leqq 2$

Function Responds to requests n specifications from the host in real-time. n specifications are below.

n = 1: Recover from the error and start printing from the line where the error occurred.

n = 2: Recover from error after clearing the reception buffer and print buffer.

Details
- This command is enabled even when the printer specification is disabled by ESC = (select peripheral devices).
- This command is enabled only when an auto-cutter and black mark errors occur.
- This command is processed upon reception.
- This command is executed even when the printer is offline, the reception buffer is full, or there is an error status on serial interface models.
- This command cannot be executed when the printer is BUSY on parallel interface models. • The printer will not enter a BUSY status when offline or when there is an error when BUSY condition of reception buffer full, offline/reception buffer full is handled as a reception buffer full in the DIP switch settings.
- The printer retains the settings by ESC !, ESC 3, that were in effect when an error occurred even when DLE ENQ 2 is executed. The printer is initialized completely using this command and ESC @.

Notes: • Operators must use caution for other commands when the data string of <10>H<05>H<n> ($1 \leqq n \leqq 2$) is received because it operates in the same manner as this command.

Ex.: In ESC * m n_L n_H [d]k, d1 = <10>H, d2 = <05>H, d3 = <01>H

• Do not use this command to interrupt code strings of other commands that consist of 2 or more codes.

Ex.: If you attempt to transmit DLE EBQ 2 up to transmitting ESC3 by trying to transmit ESC 3 n from the host, it is processed as ESC 3 10H. Operators must use caution.

STAR
- Auto-cutter error specifications vary according to model, so for models for which there are non-recoverable auto-cutter errors, three byes of this command are ignored. See Appendix-2 for details on auto-cutter error specifications for model types.
- The black mark error is canceled and the printer feeds paper to the top of form position (black mark position) when this command is received during a black mark error. Paper is cut according to the memory switch setting (paper position, cover close setting).
- Models connected to a presenter ignore this command.
- When this command is set to n = 2, the printer is reset.

Reference DLE EOT, Appendix-2

GS FF

Name	Top of form of mark paper		
Code	ASCII	GS	FF
	Hex.	1D	0C
	Decimal	29	12
Function	Top of form of mark paper		
Details	• This command is effective only when BM is valid. This command is ignored when BM is invalid.		
	• This command is enabled only when at the top of the line.		
	• This command moves to the TOF position of BM.		
STAR	• STAR printers ignore this command.		
	• Byte counts specified by (pL + pH x 256) are discarded.		
Reference	GS (F, FF		

GS (F pL pH a m nL nH

Name: Set black mark adjustment value

Code:

ASCII	GS	(	F	pL	pH	a	m	nL	nH
Hex.	1D	28	46	pL	pH	61	m	nL	nH
Decimal	29	40	70	pL	pH	97	m	nL	nH

Defined Region: (pL+pHx256) = 4, pL = 4, pH = 0

$1 \leqq a \leqq 2$

m = 0,1,48,49

$0 \leqq nL + nH \times 256 \leqq 65535$, $0 \leqq nL \leqq 255$, $0 \leqq nH \leqq 255$

Initial Value: All adjustment values = 0

Function: Sets the adjustment value of the black mark detection position.

a specifies the type of adjustment value.

a	Function
1	Sets the adjustment value of the black mark detection position.
2	Sets the adjustment value of the paper cutting position after black mark detection.

m specifies the direction of adjustment.

m	Function
0, 48	Forward Direction (Paper Feed Direction)
1, 49	Reverse Direction

nL, nH specify the amount of adjustment.

Details:

- When processing this command while defining a macro, the macro definition is immediately terminated and the command commences with processing.
- The black mark detection position (a = 1) is affected by the following command operations.
- FF
- GS FF
- The paper cutting position after black mark detection (a = 2) is affected by the following command operation.
- GS V m n
- Because this command is executed when processing a normal command after it is stored once in the reception buffer, there may be a delay between the reception of the command from the reception buffer to the actual operation.

STAR:

- On STAR printers, the default value of the black mark detection position is 2 mm from the bottom edge of the mark so, to make it the same position as on EPSON printers, it is necessary to adjust the position using this command.

Reference: FF, GS FF, GS V

GS (M pL pH n m (Function Code: n = 1, 49)

Name: Save black mark adjustment value

Code:

ASCII	GS	(	M	pL	pH	n	m
Hex.	1D	28	4D	pL	pH	n	m
Decimal	29	40	77	pL	pH	n	m

Defined Region: (pL+pHx256) = 2, pL = 2, pH = 0

n = 1, 49

$1 \leqq m \leqq 3$, $49 \leqq m \leqq 51$

Function:

- Saves the black mark adjustment value set by the GS (F command to the mth region in the volatile memory.

After saving to a non-volatile memory, the printer is reset.

m	Function
1	Saves the adjustment value to the 1st saving region of the non-volatile memory.
2	Saves the adjustment value to the 2nd saving region of the non-volatile memory.
3	Saves the adjustment value to the 3rd saving region of the non-volatile memory.

Consider the life of the non-volatile memory and avoid over-use of this command.

Reference: GS (F

GS (M pL pH n m (Function Code: n = 2, 50)

Name: Load black mark adjustment value

Code:

ASCII	GS	(	M	pL	pH	n	m
Hex.	1D	28	4D	pL	pH	n	m
Decimal	29	40	77	pL	pH	n	m

Defined Region: (pL+pHx256) = 2, pL = 2, pH = 0

n = 2, 50

$1 \leqq m \leqq 3$, $49 \leqq m \leqq 51$

Function: Loads the m position black mark adjustment value in the volatile memory.

m	Function
1	Loads the adjustment value from the 1st saving region of the non-volatile memory.
2	Loads the adjustment value from the 2nd saving region of the non-volatile memory.
3	Loads the adjustment value from the 3rd saving region of the non-volatile memory.

Reference: GS (F

GS (M pL pH n m (Function Code: n = 3, 51)

Name: Set black mark adjustment value auto-load when powering on

Code:

ASCII	GS	(	M	pL	pH	n	m
Hex.	1D	28	4D	pL	pH	n	m
Decimal	29	40	77	pL	pH	n	m

Defined Region: (pL+pHx256) = 2, pL = 2, pH = 0

n = 3, 51

$1 \leqq m \leqq 3$, $49 \leqq m \leqq 51$

Function: Validates/invalidates the black mark adjustment value auto-load when powering on.

After saving the setting to the non-volatile memory, the printer is reset.

m	Function
0	Auto-load function invalid
1	Auto-loads the 1st adjustment value of the non-volatile memory when powering on.
2	Auto-loads the 2nd adjustment value of the non-volatile memory when powering on.
3	Auto-loads the 3rd adjustment value of the non-volatile memory when powering on.

Consider the life of the non-volatile memory and avoid over-use of this command.

Reference: GS (F

GS <

Name	Mechanically initialize printer		
Code	ASCII	GS	<
	Hex.	1D	3C
	Decimal	29	60
Function	Cuts paper after feeding to the TOF (black mark).		
Details	• Does not affect other settings.		
	• This command is effective in standard mode and page mode.		
STAR	• The TOF position (black mark) varies according to the paper used and to customer specifications.		

GS V m n

Name	Cut paper				
Code	ASCII	GS	V	m	n
	Hex.	1D	56	m	n
	Decimal	29	86	m	n
Defined Region	m = 65, 66, 0 ≦ n ≦ 255				
Function	Executes the specified paper cut.				

m	Function
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)
67	Not Used
68	Not Used

Details
- This command is effective only when processed at the top of the line when standard mode is being used.
- Feeds paper to the TOF position (black mark) when n = 0, then cuts the paper.
- Feeds paper [n x basic calculated pitch] beyond the TOF position (black mark) when n ≠ 0, then cuts the paper.
- The basic calculated pitch is set by GSP (Set basic calculated pitch).
- Use the basic calculated pitch (y) relating to the vertical direction for the paper feed amount.

  If the calculation results in fractions, the pitch is corrected to a minimal mechanical pitch and the rest is discarded.

STAR
- The auto-cut function differs according to the model. A partial cut is executed on those models that cannot perform a full cut.

  A full cut is executed on those models that cannot perform a partial cut. Refer to the product specifications manual for the specifications of the auto-cut function.
- Models that do not have the auto-cut function do not cut paper. However, commands that accompany a paper feed of (cutting position + [n x basic calculated pitch]) (n = 65, 66), a paper feed of (tear bar position + [n x basic calculated pitch]) is executed.
- The TOF position (black mark) varies according to the paper used and to customer specifications.

Reference ESC i, ESC m

4-3-4 STAR Original Commands

STAR original commands are not regulated by the ESC/POS control codes, but are standard for improved functions and for independent STAR functions.

ESC GS = nL nH da1 … dak db1 …dbk

Name	Write data to a blank code page						
Code	ASCII	ESC	GS	=	nL	nHda1...dak	db1...dbk
	Hex.	1B	1D	3D	nL	nHda1...dak	db1...dbk
	Decimal	27	29	61	nL	nHda1...dak	db1...dbk
Defined Region	nL = 0						
	nH = 48						
	1 ≦ nL+ (nH x 256)						
	0 ≦ da ≦ 255 (Font-A Data)						
	0 ≦ db ≦ 255 (Font-B Data)						
	k = nL+ (nH x 256)						
Function	• Stores blank code page data in non-volatile memory.						
Details	• A blank code page is a character code table that is completely free of character codes 80H to FFH. It is selected when the character code table selection command (ESC tn) sets n = 255, or (ESC GS t n) sets n = 255.						
	• The following are data that is written to the blank code page.						
	Font-A: 1 Character = 48 bytes; 6144 bytes = 48 bytes x 128 characters						
	Font-B: 1 Character = 48 bytes; 6144 bytes = 48 bytes x 128 characters						
	• Font-A data and Font-B data is sent continuously.						
	• The printer is reset after writing with to the non-volatile memory.						
Reference	ESC t, ESC GS t, Appendix-3						

ESC GS t n

Name Select character code table

Code

ASCII	ESC	GS	t	n
Hex.	1B	1D	74	n
Decimal	27	29	116	n

Function Selects character code table.

Setting Value of n		Character Table
Hexadecimal	Decimal	
00	0	Normal*
01	1	CodePage437 (USA, Std. Europe)
02	2	Katakana
03	3	CodePage437 (USA, Std. Europe)
04	4	Codepage 858 (Multilingual)
05	5	Codepage 852 (Latin-2)
06	6	Codepage 860 (Portuguese)
07	7	Codepage 861 (Icelandic)
08	8	Codepage 863 (Canadian French)
09	9	Codepage 865 (Nordic)
0A	10	Codepage 866 (Cyrillic Russian)
0B	11	Codepage 855 (Cyrillic Bulgarian)
0C	12	Codepage 857 (Turkish)
0D	13	Codepage 862 (Hebrew)
0E	14	Codepage 864 (Arabic)
0F	15	Codepage 737 (Greek)
10	16	Codepage 851 (Greek)
11	17	Codepage 869 (Greek)
12	18	Codepage 928 (Greek)
13	19	Codepage 772 (Lithuanian)
14	20	Codepage 774 (Lithuanian)
15	21	Codepage 874 (Thai)
20	32	Codepage 1252 (Windows Latin-1)
21	33	Codepage 1250 (Windows Latin-2)
22	34	Codepage 1251 (Windows Cyrillic)
40	64	Codepage 3840 (IBM-Russian)
41	65	Codepage 3841 (Gost)
42	66	Codepage 3843 (Polish)
43	67	Codepage 3844 (CS2)
44	68	Codepage 3845 (Hungarian)
45	69	Codepage 3846 (Turkish)
46	70	Codepage 3847 (Brazil-ABNT)
47	71	Codepage 3848 (Brazil-ABICOMP)
48	72	Codepage 1001 (Arabic)
49	73	Codepage 2001 (Lithuanian-KBL)
4A	74	Codepage 3001 (Estonian-1)
4B	75	Codepage 3002 (Estonian-2)
4C	76	Codepage 3011 (Latvian-1)
4D	77	Codepage 3012 (Latvian-2)
4E	78	Codepage 3021 (Bulgarian)
4F	79	Codepage 3041 (Maltese)
FF	255	Blank page

Details • If an n that is outside of the definition is input, Normal is selected.

ESC GS # m N n1 n2 n3 n4 LF NUL

Name: Memory Switch Settings

Code

ASCII	ESC	GS	#	m	N	n1	n2	n3	n4	LF	NUL
Hex.	1B	1D	23	m	N	n1	n2	n3	n4	LF	NUL
Decimal	27	29	35	m	N	n1	n2	n3	n4	LF	NUL

Defined Region

m = “W”, ”T”, ”,”, ”+”, ”-”, ”@”

“0” ≦ N ≦ ”9”, “A” ≦ N ≦ ”F”, “a” ≦ N ≦ ”f”

“0” ≦ n1 ≦ ”9”, “A” ≦ n1 ≦ ”F”, “a” ≦ n1 ≦ ”f”

“0” ≦ n2 ≦ ”9”, “A” ≦ n2 ≦ ”F”, “a” ≦ n2 ≦ ”f”

“0” ≦ n3 ≦ ”9”, “A” ≦ n3 ≦ ”F”, “a” ≦ n3 ≦ ”f”

“0” ≦ n4 ≦ ”9”, “A” ≦ n4 ≦ ”F”, “a” ≦ n4 ≦ ”f”

Function

• Sets the memory switches

Function	Class	m	N	n1 n2 n3 n4
Definition data write and reset	Write	“W”	Fixed at “0”	Fixed at “0000”
Definition data write and reset and test print	Write	“T”	Fixed at “0”	Fixed at “0000”
Data Definition (Data Specification)	Definition	“,”	N	n1 n2 n3 n4
Data definition (Set specified bit)	Definition	“+”	N	n1 n2 n3 n4
Data definition (Clear specified bit)	Definition	“-”	N	n1 n2 n3 n4
Data Definition (Initialize all data)	Definition	“@”	Fixed at “0”	Fixed at “0000”

• N: Memory switch number to specify

• n1 n2 n3 n4: Specified Data

  • m = “,” → Specified Data

  • m = “+” → Bit number to set

  • m = “-” → Bit number that was cleared.

Details

• Sends command to write after specifying the memory switch using the definition command regulated by classes in the table above.

• Memory switch information defined by the command to write is written to the volatile memory.

• When writing to the volatile memory by the command to write, the printer applies a reset.

Star Original Presenter Control Commands

The following commands control the presenter functions.

The following commands are effective only on models equipped with a presenter.

ESC SYN 0 n

Name	Execute presenter paper recovery				
Code	ASCII	ESC	SYN	0	n
	Hex.	1B	16	30	n
	Decimal	27	22	48	n
Defined Region	n = 0, 48				
Function	Executes presenter paper recovery.				
	This command is ignored when a presenter is not connected.				
	Also, this command is executed when paper is supplied by the presenter, exists in the presenter and the paper has been cut. This command is ignored under all other conditions. (Ignored when paper is being recovered.))				
Reference	ESC SYN 1, ESC SYN 2, ESC SYN 3, ESC SYN 4				

ESC SYN 1 n

Name: Set presenter paper recovery function and automatic recovery time

Code:

ASCII	ESC	SYN	1	n
Hex.	1B	16	31	n
Decimal	27	22	49	n

Defined Region: $0 \leqq n \leqq 255$

Initial Value: Memory Switch Setting

Function: Sets presenter paper automatic recovery function and automatic recovery time.

This command is ignored when a presenter is not connected.

Settings using this command are effective from the next sheet when the printer processes this command and paper has already been supplied to the presenter.

n	Function
n = 0	Paper automatic recovery function invalid.
$1 \leqq n \leqq 255$	Paper automatic recovery function valid. Automatic recovery time: n x 0.5 sec (0.5 sec to 127.5 sec)

Reference: ESC SYN 0, ESC SYN 2, ESC SYN 3, ESC SYN 4

ESC SYN 3 n

Name	Get presenter paper counter				
Code	ASCII	ESC	SYN	3	n
	Hex.	1B	16	33	n
	Decimal	27	22	51	n

Defined Region: n = 0, 1, 48, 49

Function: Acquires presenter paper counter.

This command is ignored when a presenter is not connected.

Counter can count to 0xFFFFFFFF sheets.

Counter is cleared to zero when the following conditions are met.

• At a printer reset

• At <ESC> <SYN> 4 n command

The paper counter sends the counter value at the time this command is processed.

The counter is counted up when paper is completely recovered or when pulled out.

The counter counts from when the power is turned ON, excluding the following.

• When paper is discharged because of an error

• When printing using self-print

• When paper in the presenter is discharged when the power is turned ON

n	Counter
n = 0, 48	Acquires paper reel counter
n = 1, 49	Acquires paper recovery counter

<Counter transmission format from printer: When using the paper reel counter>

Printer Transmission: ESC SYN 3 n c1 c2 c3 c4

Reel counter: c4 + (c3 x 256) + (c2 x 256 x 256) + (c1 x 256 x 256 x 256)

Reference: ESC SYN 0, ESC SYN 1, ESC SYN 2, ESC SYN 4

ESCSYN4n

Name	Initialize presenter paper counter				
Code	ASCII	ESC	SYN	4	n
	Hex.	1B	16	34	n
	Decimal	27	22	52	n

Defined Region: n = 0

Function: Initializes the presenter paper counter (paper reel counter/paper recovery counter).

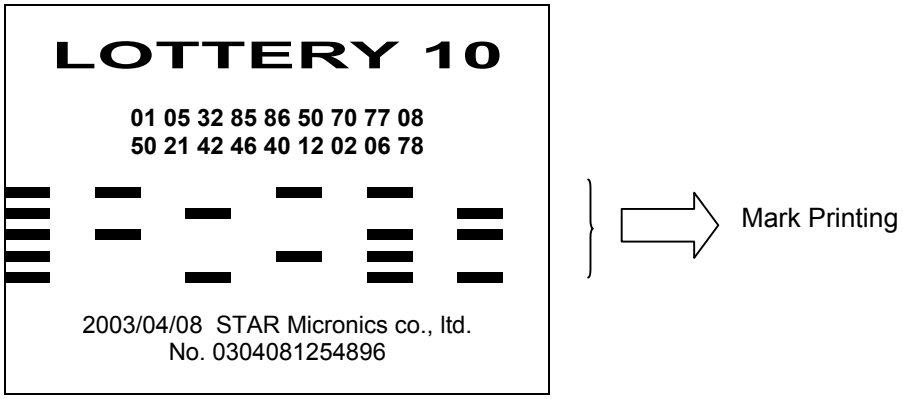
Initialization of the paper counter using this command is executed when this command is processed.

Reference: ESC SYN 0, ESC SYN 1, ESC SYN 2, ESC SYN 3

STAR Original Mark Commands

This command is specialized for printing mark sheets for lotteries. This command can print lines.

<Print Sample>



<Example of Command Transmission>

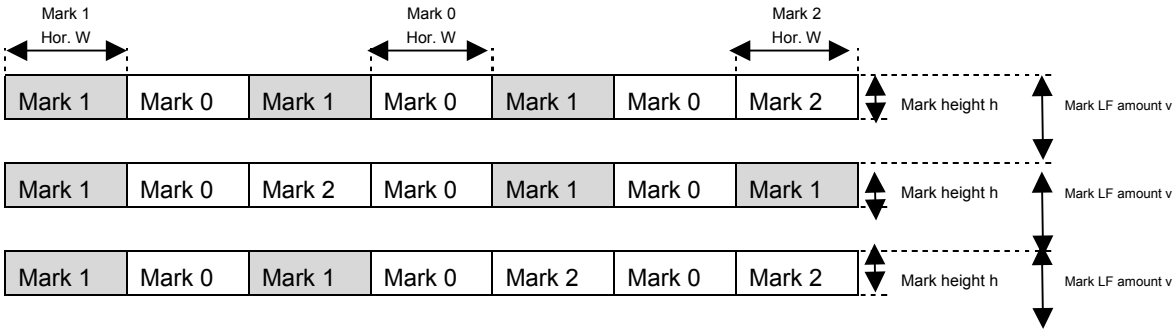
• Mark Format

Mark Height h = 10 dots, Mark line feed amount v = 20 dots

Mark number 0: Mark Color c = White, Mark horizontal width w = 16 dots

Mark number 1: Mark Color c = Black, Mark horizontal width w = 40 dots

Mark number 2: Mark Color c = White, Mark horizontal width w = 40 dots



• Example Transmission

1. Mark height, Line feed amount setting

<ESC> <GS> *1 h v (h = “010”, v = “020”)

2. Color of each mark number, Horizontal width setting

<ESC> <GS> *2 m c w (Mark number 0 setting: m = “0”, c = “0”, w = “016”)

<ESC> <GS> *2 m c w (Mark number 0 setting: m = “1”, c = “1”, w = “040”)

<ESC> <GS> *2 m c w (Mark number 0 setting: m = “2”, c = “0”, w = “040”)

3. Register the mark format specified by 1 and 2 in advance in the non-volatile memory (it is possible to print marks that are not registered in the non-volatile memory.)

<ESC> <GS> *W

4. Printing Marks

<ESC><GS>*0nm1m2m3m4m5m6m7

(n = “007”, m1 = “1”, m2 = “0”, m3 = “1”, m4 = “0”, m5 = “1”, m6 = “0”, m7 = “2”)

<ESC><GS>*0nm1m2m3m4m5m6m7

(n = “007”m1 = “1”, m2 = “0”, m3 = “2”, m4 = “0”, m5 = “1”, m6 = “0”, m7 = “1”)

<ESC><GS>*0nm1m2m3m4m5m6m7

(n = “007”, m1 = “1”, m2 = “0”, m3 = “1”, m4 = “0”, m5 = “2”, m6 = “0”, m7 = “2”)

ESC GS * 0 n m1 m2 m3 … mk

Name	Print mark										
Code	ASCII	ESC	GS	*	0	n	m1	m2	m3	. . .	mk
	Hex.	1B	1D	2A	30	n	m1	m2	m3	. . .	mk
	Decimal	27	29	42	48	n	m1	m2	m3	. . .	mk
Defined Region	“001” ≦ n ≦ ”255”										
	“0” ≦ m ≦ ”9”										
	k = n										
Initial Value	---										

Function

Prints the mark number specified by m, based on the mark format (mark height, mark line feed amount, each mark color, and each mark horizontal width) that is preset.

n indicates the number of marks to print; If the number of marks is 10 (m1 to m10), n = “010.”

m specifies the mark number to print.

n and m are ASCII character strings that are represented by decimals; They are composed of character codes “0” to “9.”

This command is ignored if there is print data in the image buffer. Therefore, other characters cannot be included (characters, bit images, bar codes, etc.).

If there is no mark specified in the remaining print region, the number of bytes specified by n are discarded.

Also, in page mode, if the value of n is out of the defined range, subsequent data are processed as normal data.

This command is affected by position alignment, left margin, moved position, positions such as horizontal tab and upside down printing.

Reference ESC GS * 1, ESC GS * 2, ESC GS * W, ESC GS *C

ESC GS * 1 h v

Name	Specify mark height and line feed						
Code	ASCII	ESC	GS	*	1	h	v
	Hex	1B	1D	2A	31	h	v
	Decimal	27	29	42	49	h	v
Defined Region	“001” ≦ h ≦ ”255”						
	“001” ≦ v ≦ ”255”						
	h ≦ v						
Initial Value	Non-volatile memory						
Function	Specifies mark height and line feed amount						
	h is the mark height (number of dots); v is the line feed amount for the mark (number of dots)						
	h and v are ASCII character strings that are represented by decimals; They are composed of character codes “0” to “9.”						
	If a small line feed amount is specified, missing print can occur, so more than v = 16 dots is recommended.						
Reference	ESC GS * 0, ESC GS * 2, ESC GS * W, ESC GS * C						

ESC GS * 2 m c w

Name	Specify mark color and mark horizontal width for each mark number							
Code	ASCII	ESC	GS	*	2	m	c	w
	Hex.	1B	1D	2A	32	m	c	w
	Decimal	27	29	42	50	m	c	w

Defined Region

"0" ≦ m ≦ "9"

"0" ≦ c ≦ "1"

"001" ≦ w ≦ "999"

Initial Value

Non-volatile memory

Function

Specifies mark color and mark horizontal width for each mark number.

m specifies the mark number.

c specifies the mark color.

w specifies the mark horizontal width (number of dots).

If w exceeds the print region, this command is ignored.

m, c and w are ASCII character strings that are represented by decimals; They are composed of character codes "0" to "9."

c	Mark Color
n = "0" (48)	White
n = "1" (49)	Black

Reference

ESC GS * 0, ESC GS * 1, ESC GS * W, ESC GS * C

ESC GS * W

Name	Register mark format to non-volatile memory				
Code	ASCII	ESC	GS	*	W
	Hex.	1B	1D	2A	57
	Decimal	27	29	42	87
Defined Region	---				
Initial Value	---				

Function

Registers the mark format (mark height, mark line feed amount, each mark color, and each mark horizontal width) to the non-volatile memory.

After registering to the non-volatile memory, the printer is reset.

Reference ESC GS * 0, ESC GS * 1, ESC GS * 2, ESC GS * C

ESC GS * C

Name	Initialize mark format in the non-volatile memory				
Code	ASCII	ESC	GS	*	C
	Hex.	1B	1D	2A	43
	Decimal	27	29	42	67
Defined Region	---				
Initial Value	---				

Function

Initializes the registered mark format (mark height, mark line feed amount, each mark color, and each mark horizontal width) in the non-volatile memory. After initialization, the printer is reset.

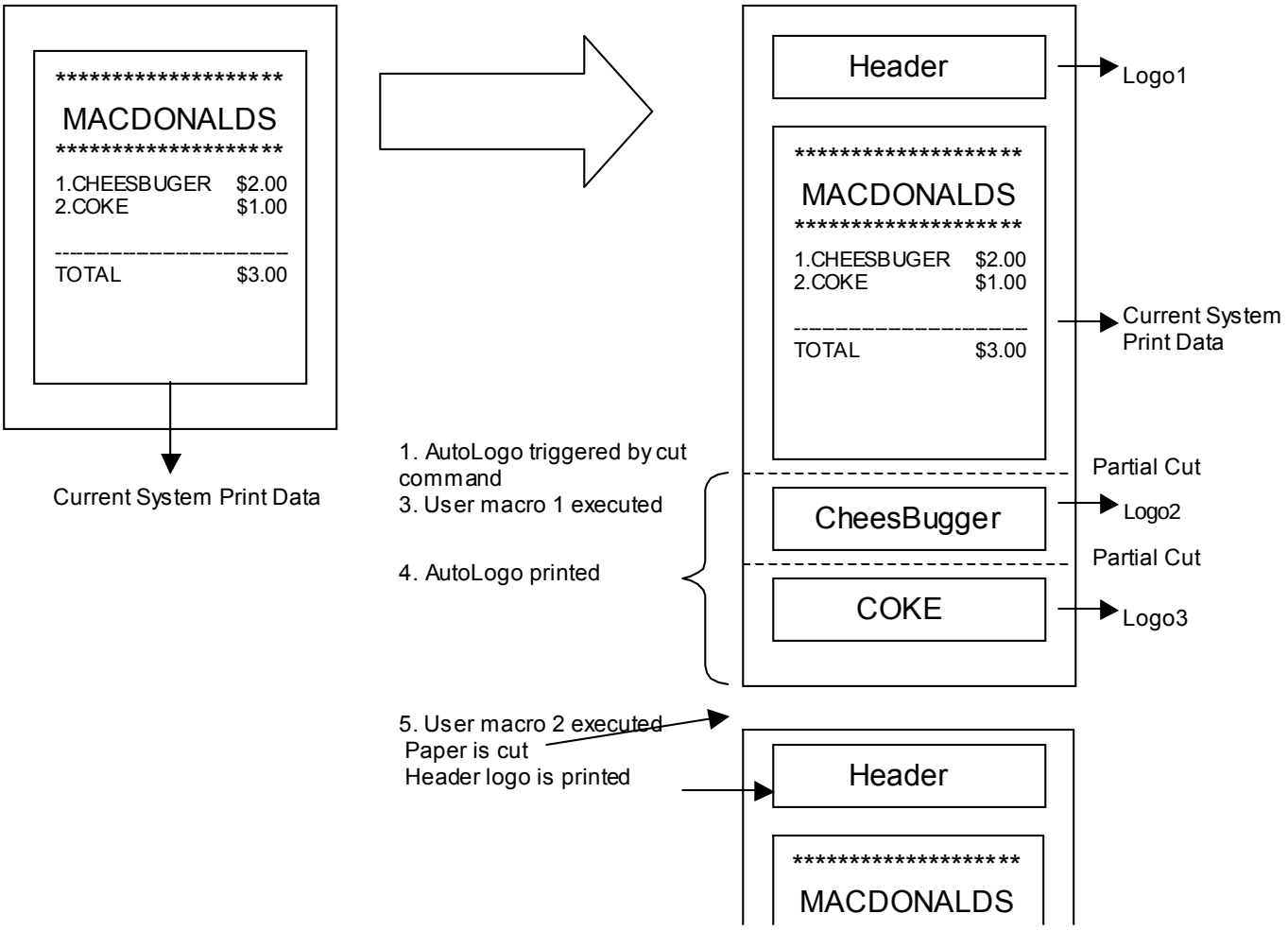
Initial Value of the Mark Format

- Mark Height: "016" (16 dots)
- Mark line feed amount: "032" (32 dots)
- Mark Color: "0" (White → All mark numbers)
- Mark Horizontal Width: "080" (80 dots → All mark numbers)

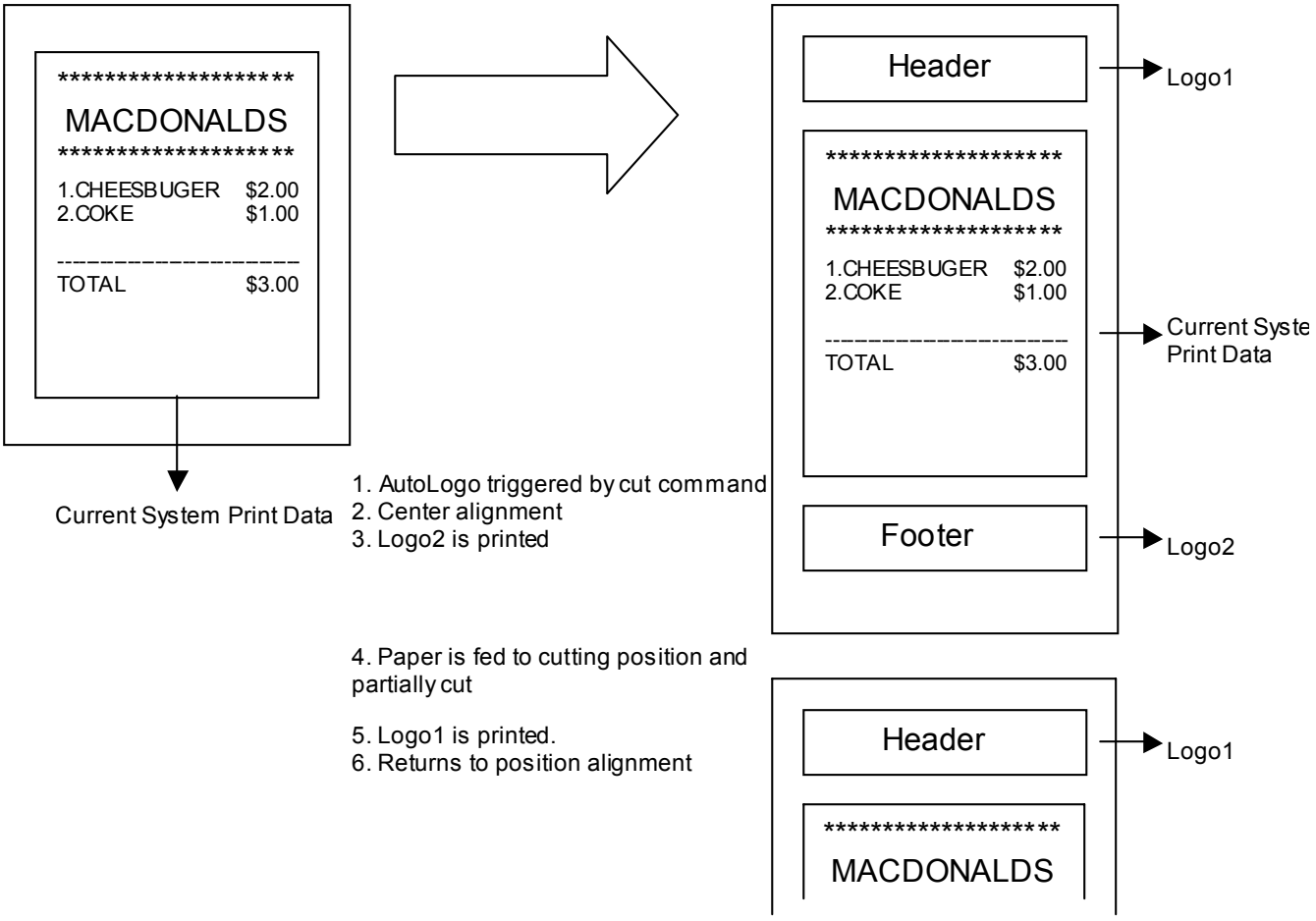
Reference ESC GS * 0, ESC GS * 1, ESC GS * 2, ESC GS * W

STAR Original Auto Logo Command

This command functions to print logos, like the one below, by only changing the product name, when only product names can be changed in systems that are already in use. Also, this function has two operating modes.
1) Standard Auto Logo Function
The Auto Logo function is preset and executes the following operations using the print cut command under the current system as a trigger.
1. Starts up the Auto Logo function using the current system cut command as a trigger
2. Prints if there is print data in the image buffer
3. Executes user macro 1
4. Prints Auto Logo
5. Executes user macro 2
Logo 2 is printed by #4 Auto Logo printing according to the command character "/" that was preset in the current print data and embedding the Logo number "2" to print. Specifically, if the product is registered with "CHEESEBURGER/2" the logo 2 coupon ticket is automatically printed for the purchaser of a cheese burger. Also, Logo 1 for the header is used for company logos. By registering to the user macro 2 of #5, cut command + Logo 1 print command, the company logo of logo1 will be printed. User macro 1 of #3 is used when it is necessary to position the Auto Logo in the center. When doing so, register the left alignment command using the user macro 2 of #5 and return to its original setting.



2) Simple Auto Logo Functions
The simple Auto Logo function is preset and executes the following operations using the print cut command under the current system as a trigger.
1. Starts up the simple Auto Logo function using the current system cut command as a trigger
2. Center alignment command process
3. Print Logo 2
4. Feed paper to cutting position and executes a partial cut
5. Print Logo 1
6. Recovers position alignment command to setting prior to execution of the simple Auto Logo
With the simple Auto Logo function, the logo number of the logo to be printed is decided in advance.



<Example of Command Transmission>
1) Set the Auto Logo function in advance and register it to the non-volatile memory.

ESCGS/1n (n = 0x01):	Standard Auto Logo Function ON
ESCGS/2n (n = "/"):	Specify Auto Logo Command Character ("/")
ESCGS/3nLnHd1d2...dk:	User Macro 1 Definition
nL = 3n H = 0:	Registered Macro Count = 3 Bytes
d1 = 0x1 bd2 = 0x61 d3 = 0x01:	Registered Macro <ESC a1: Center Alignment>
ESCGS/4nLnHd1d2...dk:	User Macro 2 Definition
nL = 16 nH = 0:	Registered Macro Count = 16 Bytes
d1 = 0x1d d2 = 0x56 d3 = 0x42 d4 = 0x00:	Registered Macro <GS V 660: Transport to Cutting Position and Perform Partial Cut>

d5 = 0x1c d6 = 0x70 d7 = 0x01 d8 = 0x00:	<FS p10: Logo1 Print>
d9 = 0x1b d10 = 0x61 d11 = 0x00:	<ESC a0: Left Alignment>
d12 = 0x1b d13 = 0x70 d14 = 0x03 d15 = 0x64 d16 = 0x00:	<ESC p3 100 0: Draw Drive>
ESCGS/5n (n = 0x01):	Auto Logo Command Character, Space Switch
ESCGS/6n (n = 0x01):	Partial Cut Before Auto Logo Printing Valid
ESCGS/W:	Register Auto Logo Definition Data to Non-volatile Memory

2) Send registered command character embedded in print data
“CHEESEBURGER/2” –> “/” is recognized as the Auto Logo command character; “/2” switch to space; “2” specifies Logo2.

ESC GS / W

Name	Register Auto Logo setting to non-volatile memory				
Code	ASCII	ESC	GS	/	W
	Hex.	1b	1d	2f	57
	Decimal	27	29	47	87
Defined Region	---				
Initial Value	---				
Function	Registers Auto Logo setting to non-volatile memory				
	After registration, the printer is reset.				
	This command is ignored when Auto Logo is being executed.				
Reference	ESC GS / C, ESC GS / 1, ESC GS / 2, ESC GS / 3, ESC GS / 4, ESC GS / 5, ESCGS/6				

ESC GS / C

Name	Initialize Auto Logo setting to non-volatile memory				
Code	ASCII	ESC	GS	/	C
	Hex.	1b	1d	2f	43
	Decimal	27	29	47	67
Defined Region	---				
Initial Value	---				

Function

Initializes registered data in the non-volatile memory of the Auto Logo function.

After initialization, the printer is reset.

This command is ignored when Auto Logo is being executed.

The default values of the Auto Logo function are below.

Setting	Initial Value
Auto Logo Function	OFF
Command Character	None
User Macro 1	None
User Macro 2	None
Command Character Switch	No print
Partial Cut Before Auto Logo Printing	Invalid

Reference

ESC GS / W, ESC GS / 1, ESC GS / 2, ESC GS / 3, ESC GS / 4, ESC GS / 5, ESC GS / 6

ESC GS / 1 n

Name: Auto Logo Function On/Off Setting

Code:

ASCII	ESC	GS	/	1	n
Hex.	1b	1d	2f	31	n
Decimal	27	29	47	49	n

Defined Region: $0 \leqq n \leqq 2$

Initial Value: n = 0

Function: Turns the Auto Logo function on and off.

This command is registered to the non-volatile memory by the "<ESC> <GS> / W" command.

When in page mode, the Auto Logo function is invalid.

This command is ignored when Auto Logo is being executed.

n	Setting
0	Auto Logo Function Off
1	Standard Auto Logo Function ON <Operation Specifications> 1. Starts up the Auto Logo function using the current system cut command as a trigger 2. Prints if there is print data in the image buffer 3. Executes user macro 1 4. Prints Auto Logo 5. Executes user macro 2
2	Simple Auto Logo Function ON <Operation Specifications> 1. Starts up the Auto Logo function using the current system cut command as a trigger 2. Prints if there is print data in the image buffer 3. Execute center alignment 4. Print Logo 2 (When 2 color printing is set: Logo3) 5. Feed paper to cutting position and execute a partial cut 6. Print Logo 1 7. Recover position alignment setting Note: • With this setting, user macro and command character are invalid. ("/" is printed as a character if the command character is set to "/" when setting.)

The commands that are the triggers for the Auto Logo function are below.

When the standard Auto Logo Function is turned on by n = 1, the following trigger commands function only as triggers and do not cut paper. Therefore, it is necessary to register any cut command to the user macro 2.

When the simple Auto Logo Function is turned on by n = 2, the following cut commands are executed and are the triggers for the simple Auto Logo function.

- <GS> V m: Cut command
- <GS> V m n: Cut command
- <ESC> i: Full cut command (not recommended)
- <ESC> m: Partial cut command (not recommended)

Reference: ESC GS / W, ESC GS / C, ESC GS / 2, ESC GS / 3, ESC GS / 4, ESC GS / 5, ESC GS / 6

ESC GS / 2 n

Name: Set command character

Code:

ASCII	ESC	GS	/	3	n
Hex.	1b	1d	2f	32	n
Decimal	27	29	47	50	n

Defined Region: 32 ≦ n ≦ 127, n = 0

Initial Value: n = 0

Function: Sets the Auto Logo function command character.

This command is registered to the non-volatile memory by the “<ESC> <GS> / W” command.

This command is ignored when Auto Logo is being executed.

n	Setting
32 to 127	Command Character
0	No Command Character Setting

A command character is a character that is a command for specifying the logo number to print with the Auto Logo printing.

When “/” is specified as the command character, “/2/3” is embedded in the print data.

The printer does not process the “/” as character data but as a command and stores number that follows at the end and prints it as an Auto Logo in the order that it is stored. Therefore, if “/2/3” is embedded, Auto Logo will print Logo2 and Logo3 in that order. If the specified logo has not been registered, logo printing will be ignored.

Also, if there is no set command character setting, a logo will not be printed.

Note that “/2/3” is processed as a command is not printed.

However, using the “<ESC> <GS> /5 n” command it is possible to switch “/2/3” to a space.

In the same way as with “/2/3/2/2” if a logo is duplicated, only the initial logo is printed.

A maximum of 32 logos can be stored as Auto Logos.

Continuing after the command character, the following shows the defined area of the character d that specifies the logo number.

“1” ≦ d ≦ ”9” (49 ≦ d ≦ 57) → Logo number 1 to 9

“A” ≦ d ≦ ”F” (65 ≦ d ≦ 70) → Logo number 10 to 16

Reference: ESC GS / W, ESC GS / C, ESC GS / 1, ESC GS / 3, ESC GS / 4, ESC GS / 5, ESC GS / 6

ESC GS / 3 nL nH d1 d2 … dk

Name	Set user macro 1							
Code	ASCII	ESC	GS	/	3	nL	nH	d1d2...dk
	Hex.	1b	1d	2f	33	nL	nH	d1d2...dk
	Decimal	27	29	47	51	nL	nH	d1d2...dk
Defined Region	1 ≦ nL ≦ 64							
	nH = 0							
	1 ≦ (nL+nHx256) ≦ 64							
	dk = (nL+nHx256)							
	0 ≦ d ≦ 255							
Initial Value	No user macro 1 setting							
Function	Sets the user macro 1 of the Auto Logo function.							
	This command is registered to the non-volatile memory by the “<ESC> <GS> / W” command.							
	This command is ignored when Auto Logo is being executed.							
	Registers print data in user macro 1.							
	A maximum of 64 bytes of data can be registered.							
	Note that it is prohibited to register Auto Logo command characters in a user macro.							
Reference	ESC GS / W, ESC GS / C, ESC GS / 1, ESC GS / 2, ESC GS / 4, ESC GS / 5, ESC GS / 6							

ESC GS / 4 nL nH d1 d2 ... dk

Name	Set user macro 2							
Code	ASCII	ESC	GS	/	4	nL	nH	d1d2...dk
	Hex.	1b	1d	2f	34	nL	nH	d1d2...dk
	Decimal	27	29	47	52	nL	nH	d1d2...dk
Defined Region	1 ≦ nL ≦ 64							
	nH = 0							
	1 ≦ (nL+nHx256) ≦ 64							
	dk = (nL+nHx256)							
	0 ≦ d ≦ 255							
Initial Value	No user macro 2 setting							
Function	Sets the user macro 2 of the Auto Logo function.							
	This command is registered to the non-volatile memory by the “<ESC> <GS> / W” command.							
	This command is ignored when Auto Logo is being executed.							
	Registers print data in user macro 2.							
	A maximum of 64 bytes of data can be registered.							
	Note that it is prohibited to register Auto Logo command characters in a user macro.							
Reference	ESC GS / W, ESC GS / C, ESC GS / 1, ESC GS / 2, ESC GS / 3, ESC GS / 5, ESC GS / 6							

ESC GS / 5 n

Name	Set command character switching method					
Code	ASCII	ESC	GS	/	5	n
	Hex.	1b	1d	2f	35	n
	Decimal	27	29	47	53	n

Defined Region $0 \leqq n \leqq 1$

Initial Value n = 0

Function

Sets the Auto Logo function command character switching method.

This command is registered to the non-volatile memory by the “<ESC> <GS> / W” command.

This command is ignored when Auto Logo is being executed.

n	Setting
0	Does not print the command character and the following logo number
1	Switches the command character and the following logo number into a space character (0 x 20)

When “/” is specified as the command character, the “/2” embedded in the print data is not a character string, but processed as a command.

At this time, “/2” is processed as a command is not printed.

However, by specifying n = 1 in this command, it is possible to switch “/2” to a space.

Reference ESC GS / W, ESC GS / C, ESC GS / 1, ESC GS / 2, ESC GS / 3, ESC GS / 4, ESC GS / 6

ESC GS / 6 n

Name: Set partial cut before Auto Logo printing

Code:

ASCII	ESC	GS	/	6	n
Hex.	1b	1d	2f	36	n
Decimal	27	29	47	54	n

Defined Region: $0 \leqq n \leqq 1$

Initial Value: n = 0

Function: Sets a partial cut before the Auto Logo printing.

This command is registered to the non-volatile memory by the "<ESC> <GS> / W" command.

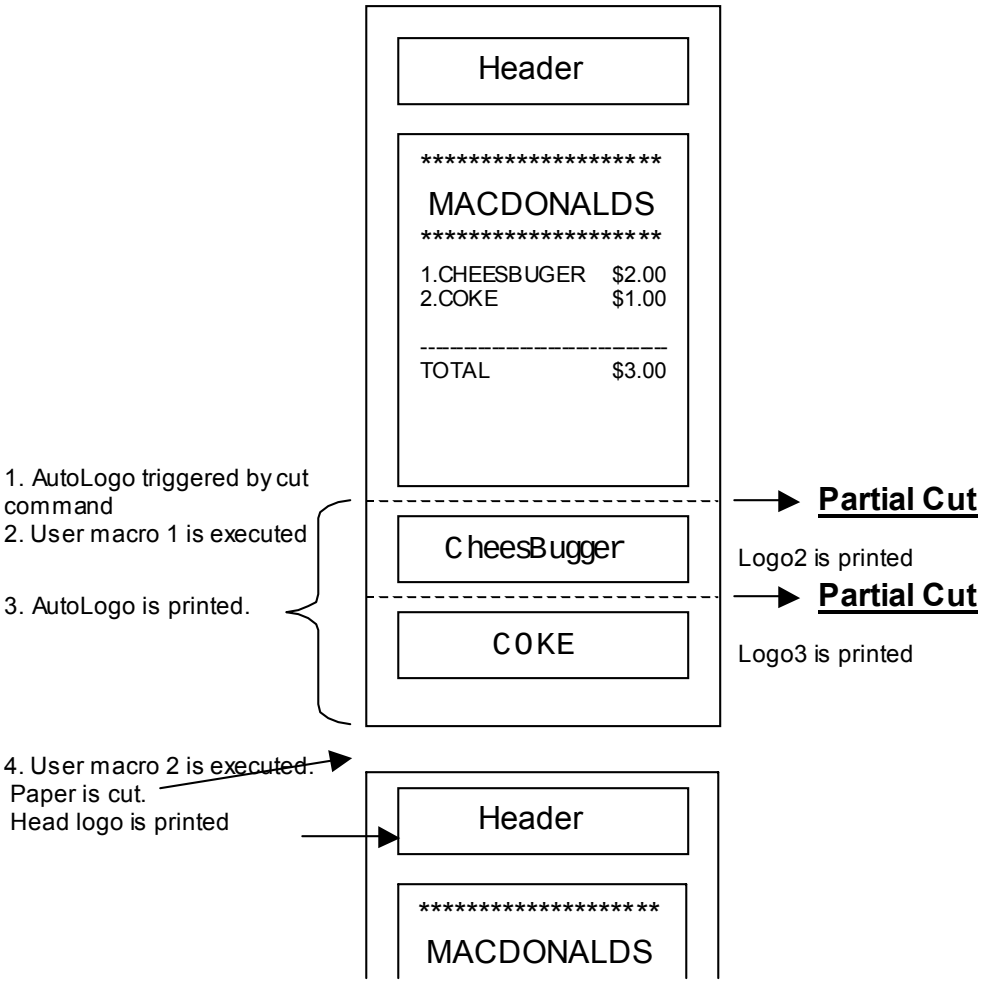
This command is ignored when Auto Logo is being executed.

n	Setting
0	Does not execute a partial cut before the Auto Logo printing.
1	Executes a partial cut before the Auto Logo printing.

When printing Logo2 and Logo3 as Auto Logo printing like the one in the drawing below, this command selects to execute a partial cut before printing Logo2 of the Auto Logo and Logo3.

If a partial cut is executed using this function, it is possible to provide coupons, etc., that are printed using Auto Logo with a partial cut.

Reference: ESC GS / W, ESC GS / C, ESC GS / 1, ESC GS / 2, ESC GS / 3, ESC GS / 4, ESC GS / 5


Header
****
MACDONALDS
****
1.CHEESBUGER $2.00
2.COKE $1.00

TOTAL $3.00
1. AutoLogo triggered by cut command
2. User macro 1 is executed
3. AutoLogo is printed.
Partial Cut
CheesBugger
Logo2 is printed
Partial Cut
COKE
Logo3 is printed
4. User macro 2 is executed.
Paper is cut.
Head logo is printed
Header
****
MACDONALDS

5. CHARACTER CODE TABLE

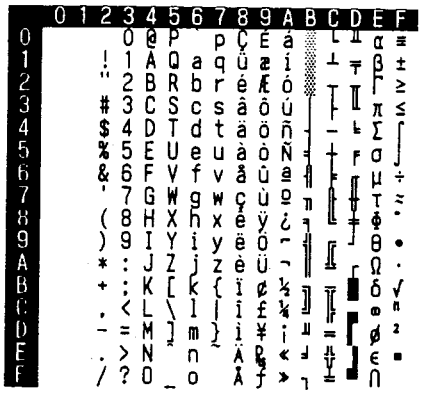
5-1 ANK Codes

5-1-1 ESC/POS Standard Codes

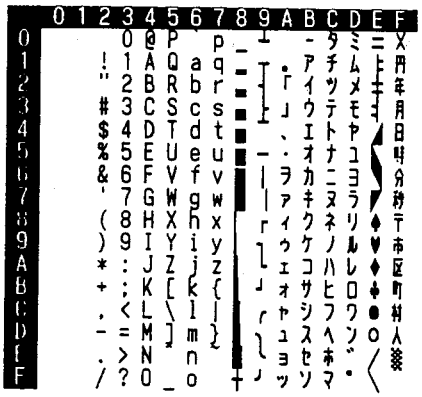
• Code pages standard on EPSON printers.

• Specify using the character code table selection command (ESC t n).

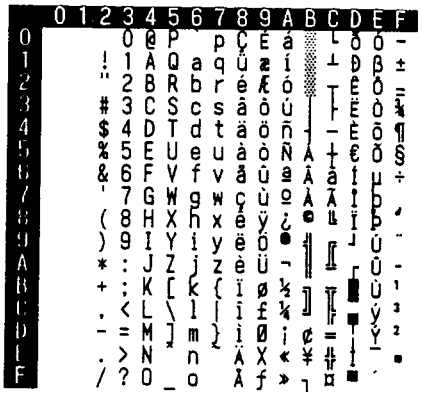
Page0 : PC437 (USA, Standard Europe)



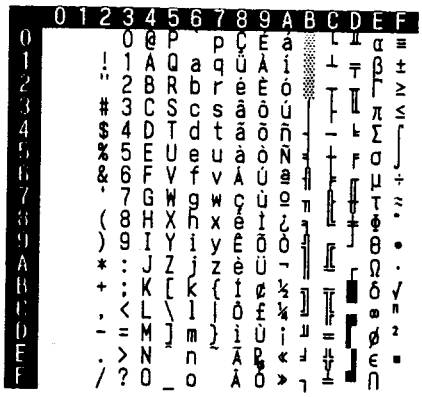
Page1 : Katakana



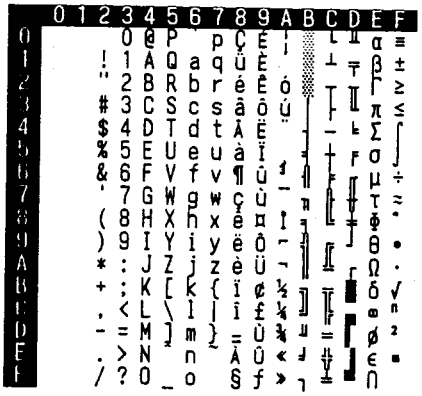
Page2 : PC858 (Multilingual/Euro)



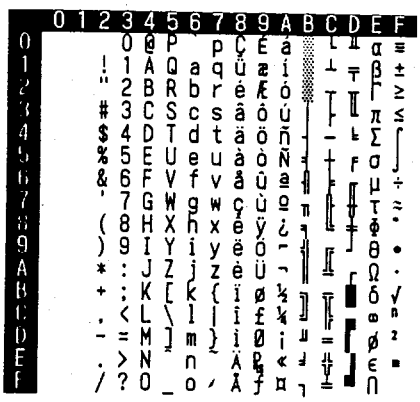
Page3 : PC860 (Portuguese)



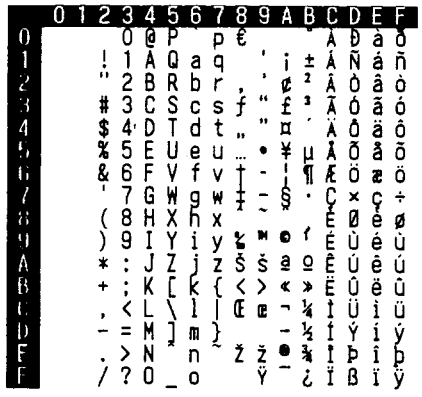
Page4 : PC863 (Canadian-French)



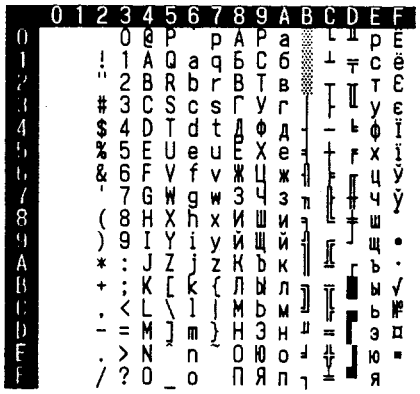
Page5 : PC865 (Nordic)



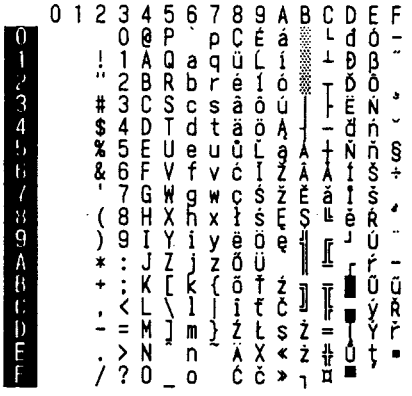
Page16 : WPC1252



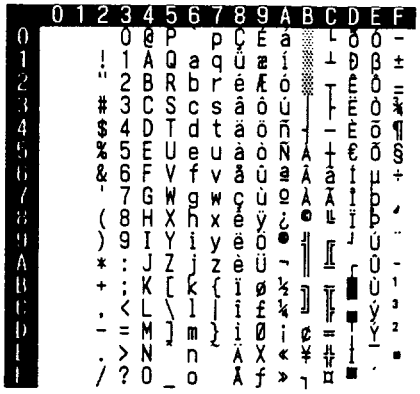
Page17 : PC862 (Cyrillic #2)



Page18 : PC852 (Latin2)



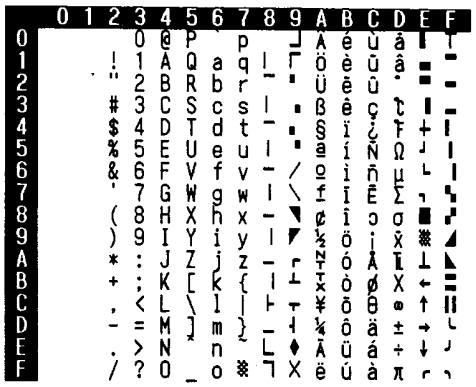
Page19 : PC858 (Multilingual/Euro)



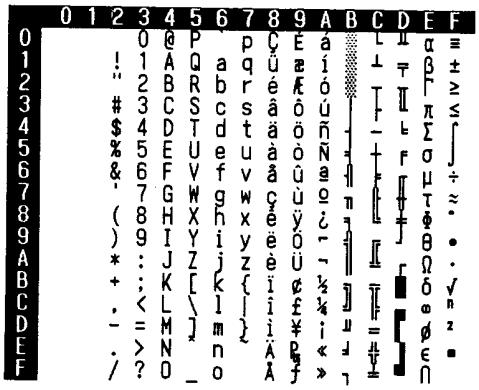
• STAR Code Pages

• Specify using the character code table selection command (ESC GS t n).

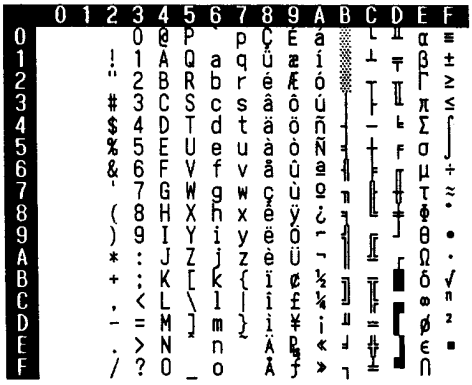
Page0 : Normal



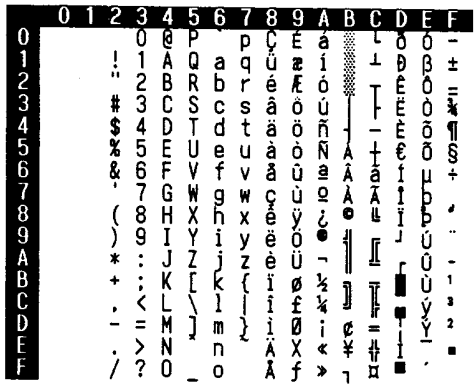
Page3 : Code Page437(USA、Std、Europe)



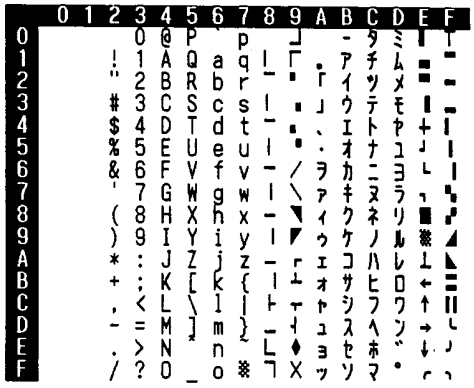
Page1 : CodePage437(USA、Std、Europe)



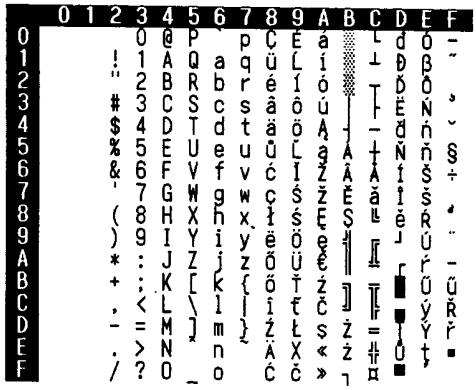
Page4 : CodePage858(Multilingual)



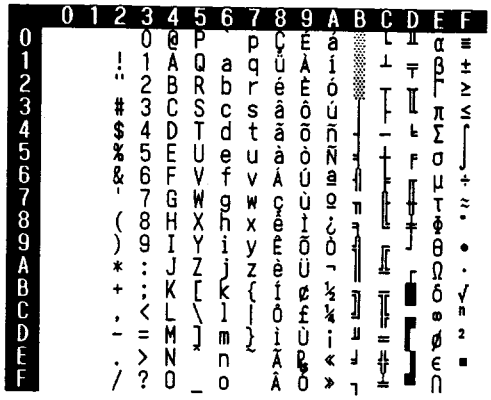
Page2 : Katakana



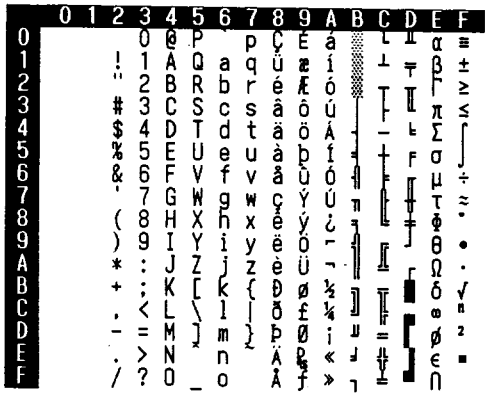
Page5 : CodePage852(Latin-2)



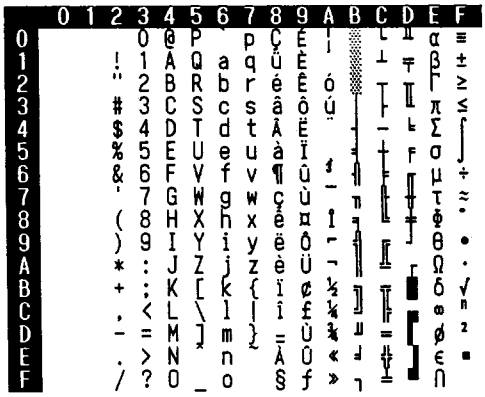
Page6 : CodePage860(Portuguese)



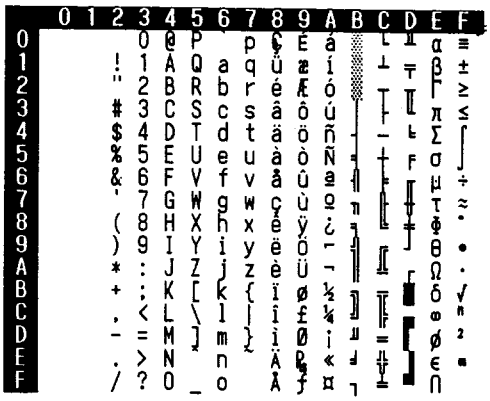
Page7 : CodePage861(Icelandic)



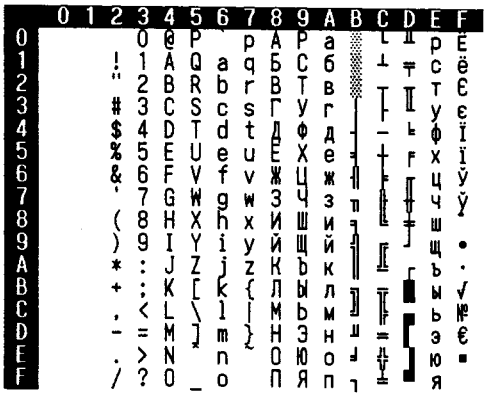
Page8 : CodePage863(Canadian French)



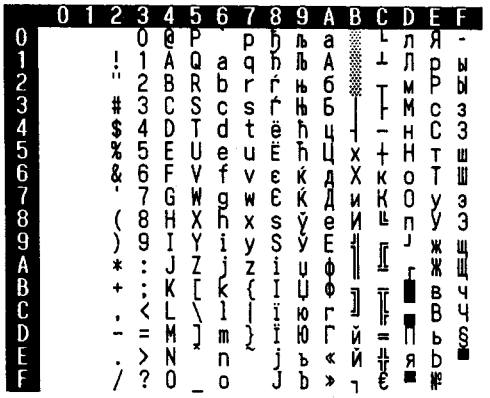
Page9 : Code Page865(Nordic)



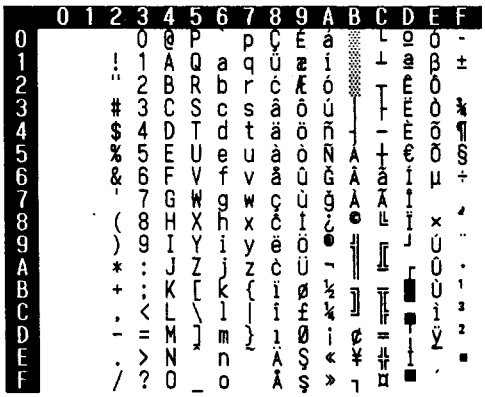
Page10 : CodePage866(Cyrillic Russian)



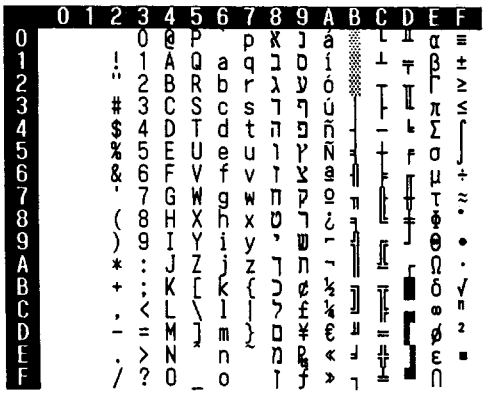
Page11 : CodePage855(Cyrillic Bulgarian)



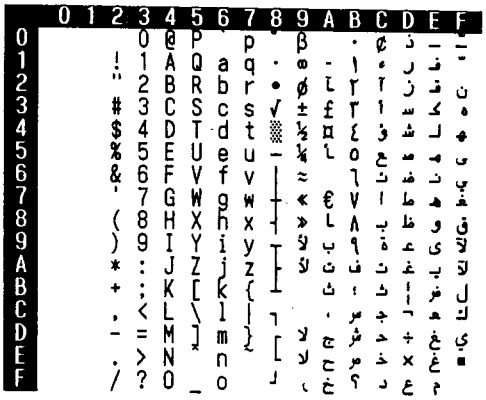
Page12 : CodePage857(Turkish)



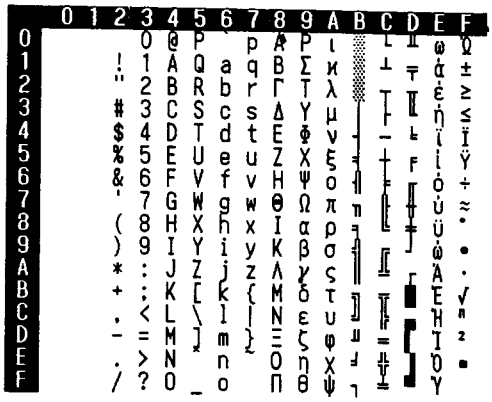
Page13 : CodePage862(Hebrew)



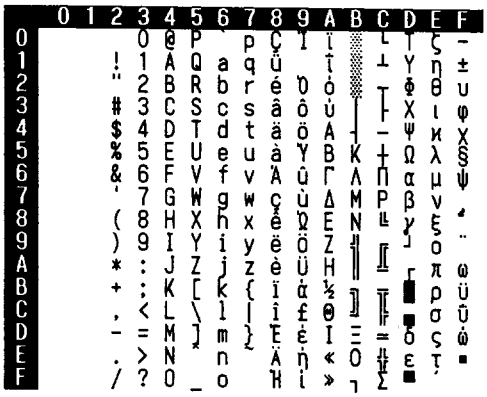
Page14 : CodePage864(Arabic)



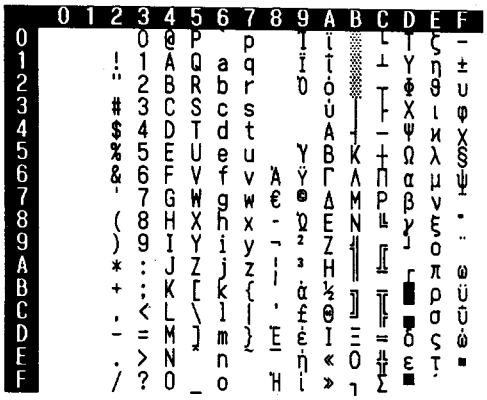
Page15 : Code Page737(Greek)



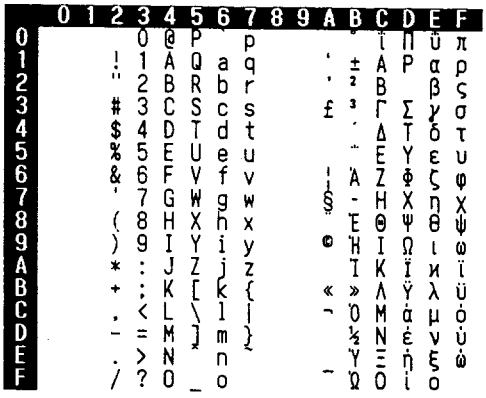
Page16 : CodePage851(Greek)



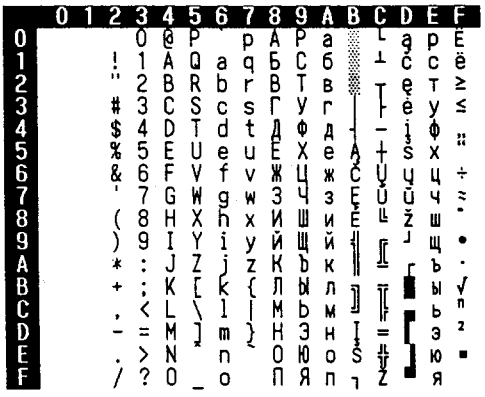
Page17 : CodePage869(Greek)



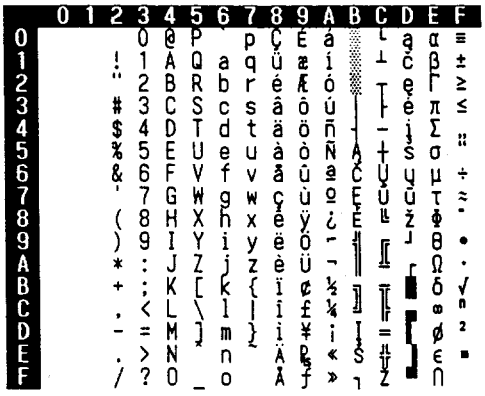
Page18 : CodePage928(Greek)



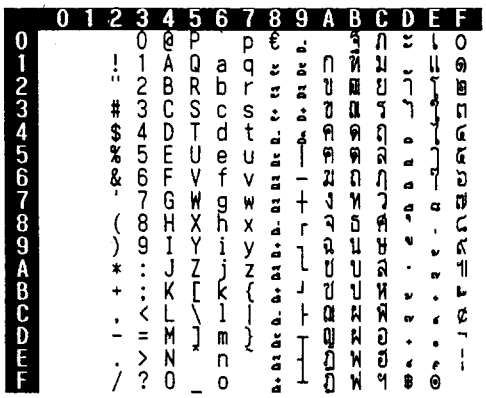
Page19 : CodePage772(Lithuanian)



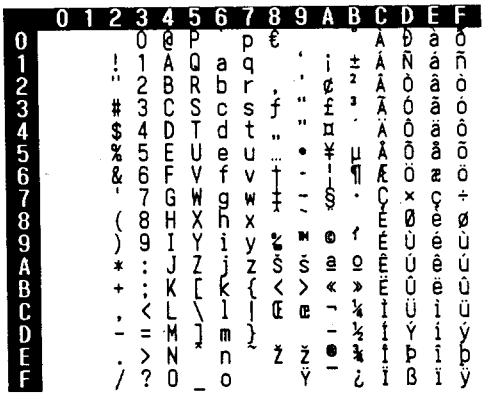
Page20 : CodePage774(Lithuanian)



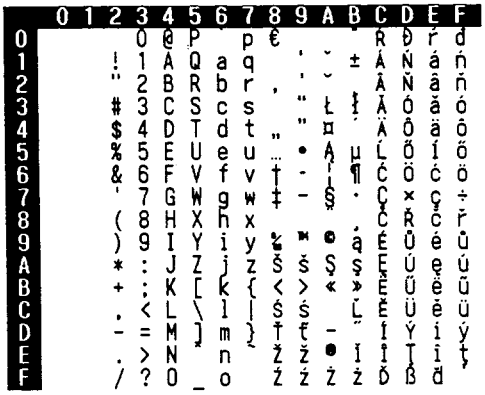
Page21 : Code Page874(Thai)



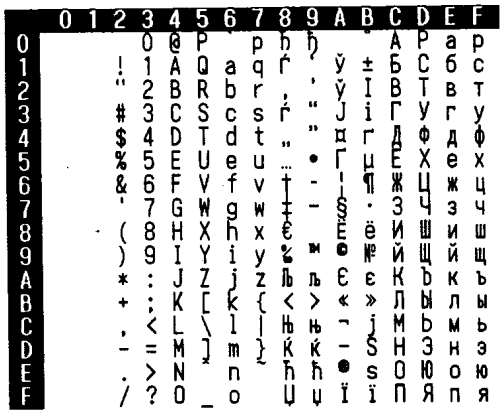
Page32 : CodePage1252(Windows Latin-1)



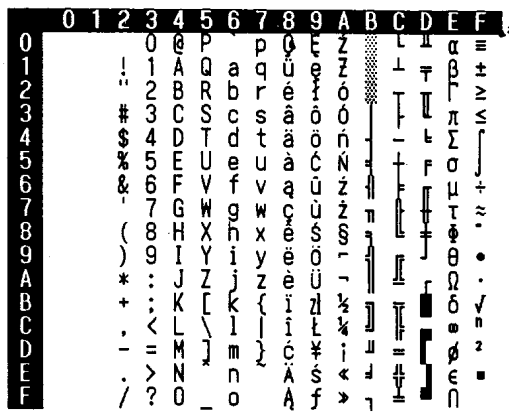
Page33 : CodePage1250(Windows Latin-2)



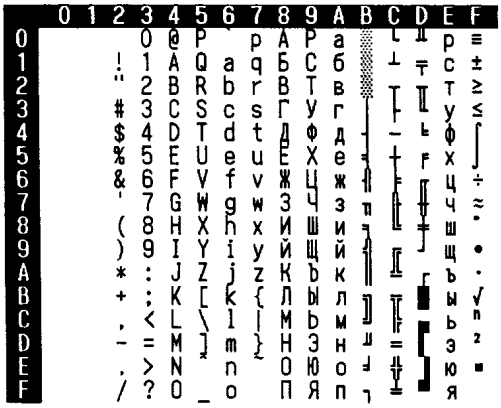
Page34 : CodePage1251 (Windows Cyrillic)



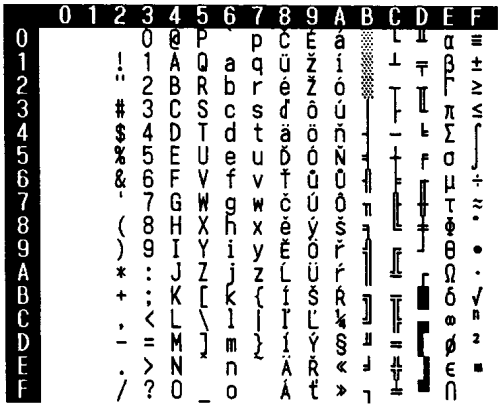
Page66 : Code Page3843 (Polish)



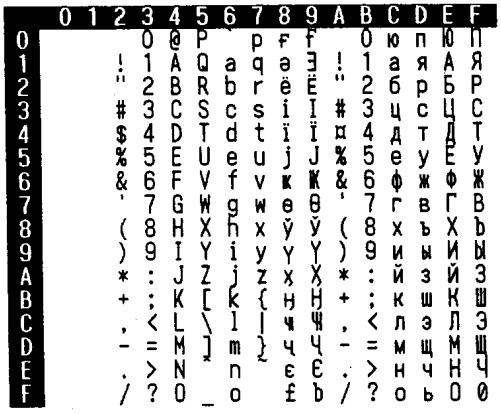
Page64 : CodePage3840 (IBM-Russian)



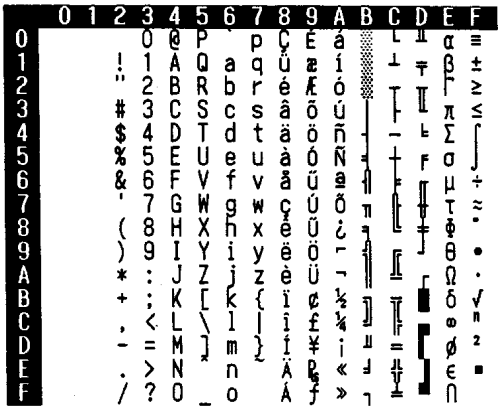
Page67 : CodePage3844 (CS2)



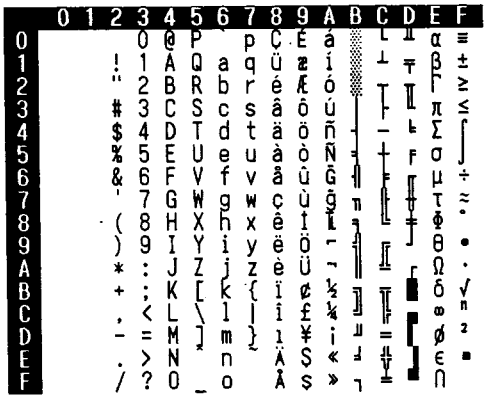
Page65 : CodePage3841 (Gost)



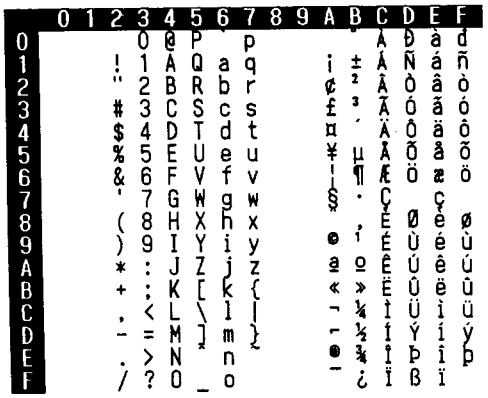
Page68 : CodePage3845 (Hangarian)



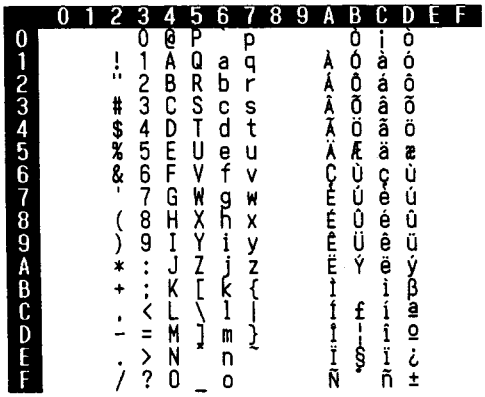
Page69 : CodePage3846(Thrkish)



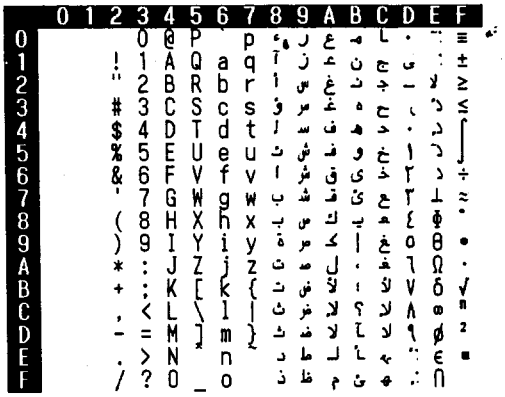
Page70 : CodePage3847(Brazil-ABNT)



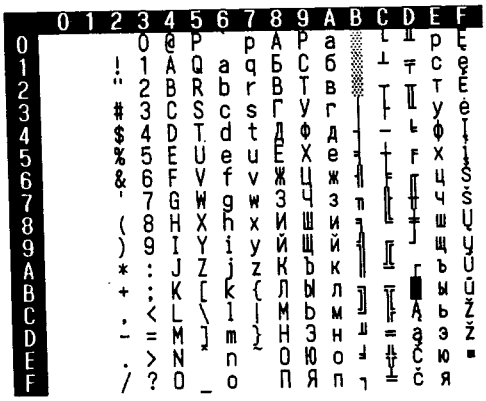
Page71 : CodePage3848(Brazil-ABICOMP)



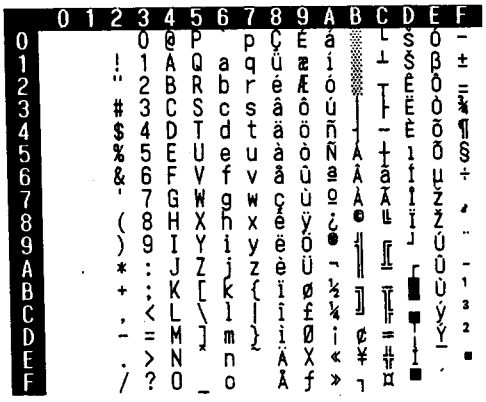
Page72 : Code Page1001(Arabic)



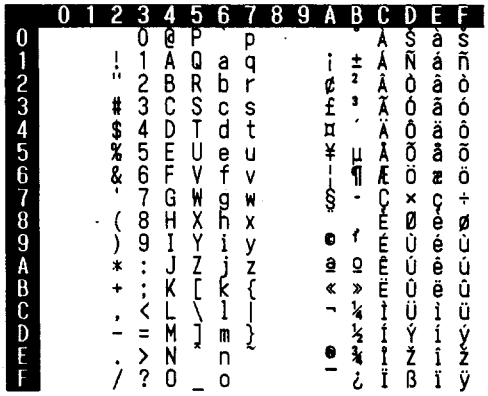
Page73 : CodePage2001(Lithuanian-KBL)



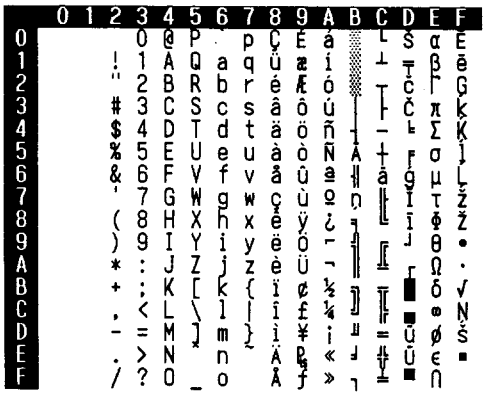
Page74 : CodePage3001(Estonian-1)



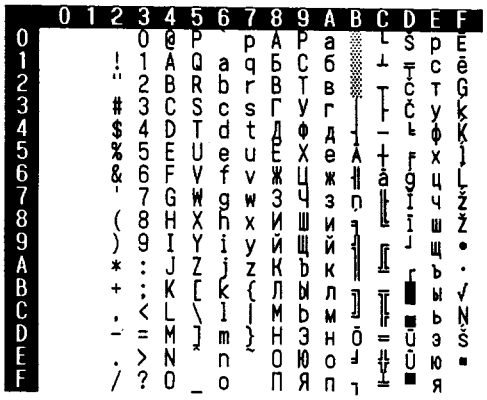
Page75 : CodePage3002(Estonian-2)



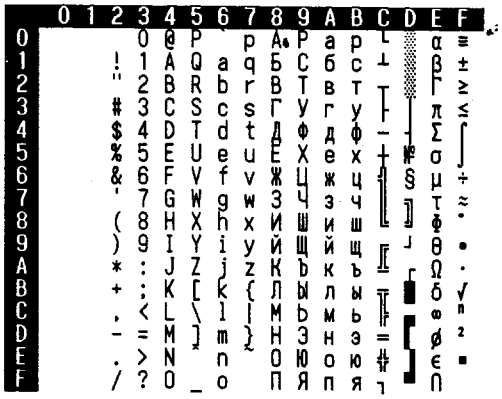
Page76 : CodePage3011(Latvian-1)



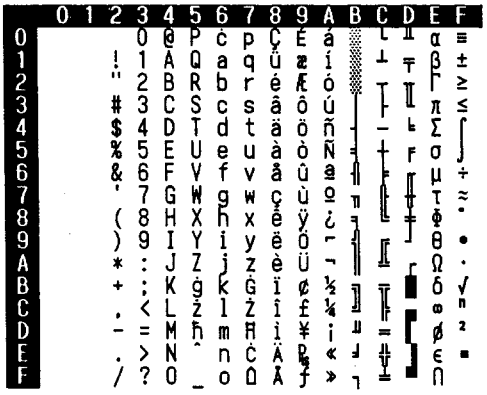
Page77 : CodePage3012(Latvian-2)



Page78 : Code Page3021(Bulgarian)



Page79 : CodePage3041(Maltese)

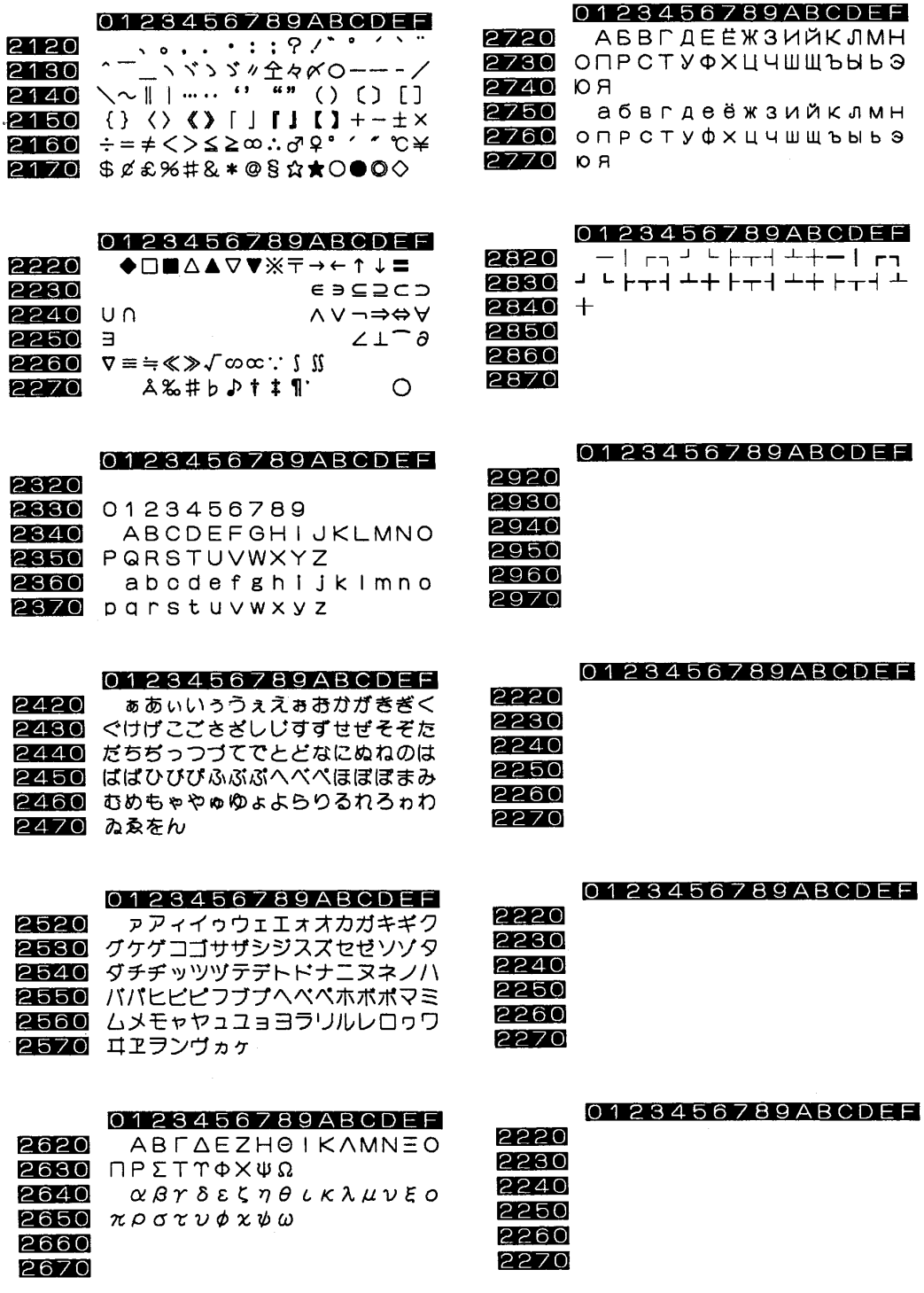


5-1-3 International Characters

	23	24	40	5B	5C	5D	5E	60	7B	7C	7D	7E
U.S.A	#	$	@	[	\	]	^	`	{	|	}	~
France	#	$	à	°	ç	§	^	`	é	ù	è	¨
Germany	#	$	§	Ä	Ö	Ü	^	`	ä	ö	ü	ß
UK	£	$	@	[	\	]	^	`	{	|	}	~
Denmark I	#	$	@	Æ	Ø	Å	^	`	æ	ø	å	~
Sweden	#	¤	É	Ä	Ö	Å	Ü	é	ä	ö	å	ü
Italy	#	$	@	°	\	é	^	ù	à	ò	è	ì
Spain	₧	$	@	¡	Ñ	¿	^	´	¨	ñ	}	~
Japan	#	$	@	[	¥	]	^	`	{	|	}	~
Norway	#	¤	É	Æ	Ø	Å	Ü	é	æ	ø	å	ü
Denmark II	#	$	É	Æ	Ø	Å	Ü	é	æ	ø	å	ü
Spain II	#	$	á	¡	Ñ	¿	é	´	í	ñ	◌	ú
Latin America	#	$	á	¡	Ñ	¿	é	ü	í	ñ	ó	ú
Korea	#	$	@	[	₩	]	^	`	{	|	}	~

5-2 Japanese Language Codes (Conforming to JIS x0208-1983)

5-2-1 JIS Codes



	0 1 2 3 4 5 6 7 8 9 A B C D E F
2220	
2230	
2240	
2250	
2260	
2270	

	0 1 2 3 4 5 6 7 8 9 A B C D E F
3320	魁晒械海灰界皆絵芥蟹開階貝凱劾
3330	外咳害崖慨概涯碍蓋街該鎧骸浬馨蛙
3340	垣柿蛎鈎劃嚇各廓拡撹格核殻獲確穫
3350	覚角赫較郭閣隔革学岳楽額顎掛笠樫
3360	橿梶鰍潟割喝恰括活渇滑葛褐轄且鰹
3370	叶椛樺鞄株兜竃蒲釜鎌噛鴨栢茅萱

	0 1 2 3 4 5 6 7 8 9 A B C D E F
2220	
2230	
2240	
2250	
2260	
2270	

	0 1 2 3 4 5 6 7 8 9 A B C D E F
3420	粥刈苅瓦乾侃冠寒刊勘勧巻喚堪姦
3430	完官寛干幹患感慣憾換敢柑桓棺款歓
3440	汗漢潤灌環甘監看竿管簡緩缶翰肝艦
3450	観諌貫還鑑間閑関陥韓館舘丸含岸
3460	厳玩癌眼岩翫贋雁頑顔願企伎危喜器
3470	基奇嬉寄岐希幾忌揮机旗既期棋棄

	0 1 2 3 4 5 6 7 8 9 A B C D E F
2220	
2230	
2240	
2250	
2260	
2270	

	0 1 2 3 4 5 6 7 8 9 A B C D E F
3520	機帰毅気汽畿祈季稀紀徽規記貴起
3530	軌輝飢騎鬼亀偽儀妓宜戯技擬欺犠疑
3540	祇義蟻誼議掬菊鞠吉吃喫桔橘詰砧杵
3550	黍却客脚虐逆丘久仇休及吸宮弓急救
3560	朽求汲泣灸球究窮笈級糾給旧牛去居
3570	巨拒拠挙渠虚許距鋸漁魚亨享京

	0 1 2 3 4 5 6 7 8 9 A B C D E F
3020	亜唖娃阿哀愛挨姶逢葵茜穐悪握渥
3030	旭葦芦鯵梓圧斡扱宛姐虻飴絢綾鮎或
3040	粟袷安庵按暗案闇鞍杏以伊位依偉囲
3050	夷委威尉惟意慰易椅為畏異移維緯胃
3060	萎衣謂違遺医井亥域育郁磯一壱溢逸
3070	稲茨芋鰯允印咽員因姻引飲淫胤蔭

	0 1 2 3 4 5 6 7 8 9 A B C D E F
3620	供侠僑兇競共凶協匡卿叫喬境峡強
3630	彊怯恐恭挟教橋況狂狭矯胸脅興蕎郷
3640	鏡響饗驚仰凝尭暁業局曲極玉桐粁僅
3650	勤均巾錦斤欣欽琴禁禽筋緊芹菌衿襟
3660	謹近金吟銀九倶句区狗玖矩苦躯駆駈
3670	駒具愚虞喰空偶寓遇隅串櫛釧屑屈

	0 1 2 3 4 5 6 7 8 9 A B C D E F
3120	院陰隠韻吋右宇烏羽迂雨卯鵜窺丑
3130	碓臼渦嘘唄鬱蔚鰻姥厩浦瓜閏噂云運
3140	雲荏餌叡営嬰影映曳栄永泳洩瑛盈穎
3150	頴英衛詠鋭液疫益駅悦謁越閲榎厭円
3160	園堰奄宴延怨掩援沿演炎焔煙燕猿縁
3170	艶苑薗遠鉛鴛塩於汚甥凹央奥往応

	0 1 2 3 4 5 6 7 8 9 A B C D E F
3720	掘窟沓靴轡窪熊隈粂栗繰桑鍬勲君
3730	薫訓群軍郡卦袈祁係傾刑兄啓圭珪型
3740	契形径恵慶慧憩掲携敬景桂渓畦稽系
3750	経継繋罫茎荊蛍計詣警軽頚鶏芸迎鯨
3760	劇戟撃激隙桁傑欠決潔穴結血訣月件
3770	倹倦健兼券剣喧圏堅嫌建憲懸拳捲

	0 1 2 3 4 5 6 7 8 9 A B C D E F
3220	押旺横欧殴王翁襖鴎鷗黄岡沖荻億
3230	屋憶臆桶牡乙俺卸恩温穏音下化仮何
3240	伽価佳加可嘉夏嫁家寡科暇果架歌河
3250	火珂禍禾稼箇花苛茄荷華菓蝦課嘩貨
3260	迦過霞蚊俄峨我牙画臥芽蛾賀雅餓駕
3270	介会解回塊壊廻快怪悔恢懐戒拐改

	0 1 2 3 4 5 6 7 8 9 A B C D E F
3820	検権牽犬献研硯絹県肩見謙賢軒遣
3830	鍵険顕験鹸元原厳幻弦減源玄現絃舷
3840	言諺限乎個古呼固姑孤己庫弧戸故枯
3850	湖狐糊袴股胡菰虎誇跨鈷雇顧鼓五互
3860	伍午呉吾娯後御悟梧檎瑚碁語誤護醐
3870	乞鯉交佼侯候倖光公功効勾厚□向

	0 1 2 3 4 5 6 7 8 9 A B C D E F
3920	后喉坑垢好孔孝宏工巧巷幸広庚康
3930	弘恒慌抗拘控攻昂晃更杭校梗構江洪
3940	浩港溝甲皇硬稿糠紅紘絞綱耕考肯肱
3950	腔膏航荒行衡講貢購郊酵鉱砿鋼閤降
3960	項香高鴻剛劫号合壕拷濠豪轟麹克刻
3970	告国穀酷鵠黒獄漉腰甑忽惚骨狛込

	0 1 2 3 4 5 6 7 8 9 A B C D E F
3820	拭植殖燭織職色触食蝕辱尻伸信侵
3830	唇娠寝審心慎振新晋森榛浸深申疹真
3840	神紳臣芯薪親診身辛進針震人仁刃
3850	塵壬尋甚尽腎訊迅陣靭笥諏須酢図厨
3860	逗吹垂帥推水炊睡粋翠衰遂酔錐錘随
3870	瑞髄崇嵩数枢趨雛据杉椙菅頗雀裾

	0 1 2 3 4 5 6 7 8 9 A B C D E F
3820	此頃今困坤墾婚恨懇昏昆根梱混痕
3830	紺艮魂些佐叉唆嵯左差査沙瑳砂詐鎖
3840	裟坐座挫債催再最哉塞妻宰彩才採栽
3850	歳済災采犀砕砦祭斎細菜裁載際剤在
3860	材罪財冴坂阪堺榊肴咲崎埼碕鷺作削
3870	咋搾昨朔柵窄策索錯桜鮭笹匙冊刷

	0 1 2 3 4 5 6 7 8 9 A B C D E F
4020	澄摺寸世瀬畝是凄制勢姓征性成政
4030	整星晴棲栖正清牲生盛精聖声製西誠
4040	誓請逝醒青静斉税脆隻席惜戚斥昔析
4050	石積籍績脊責赤跡蹟碩切拙接摂折設
4060	窃節説雪絶舌蝉仙先千占宣専尖川戦
4070	扇撰栓栴泉浅洗染潜煎煽旋穿箭線

	0 1 2 3 4 5 6 7 8 9 A B C D E F
3820	察拶撮擦札殺薩雑皐鯖捌錆鮫皿晒
3830	三傘参山惨撒散桟燦珊産算纂蚕讃賛
3840	酸餐斬暫残仕仔伺使刺司史嗣四士始
3850	姉姿子屍市師志思指支孜斯施旨枝止
3860	死氏獅祉私糸紙紫肢脂至視詞詩試誌
3870	諮資賜雌飼歯事似侍児字寺慈持時

	0 1 2 3 4 5 6 7 8 9 A B C D E F
4120	繊羨腺舛船薦詮賤践選遷銭銑閃鮮
4130	前善漸然全禅繕膳糧噌塑岨措曾曽楚
4140	狙疏疎礎祖租粗素組蘇訴阻遡鼠僧創
4150	双叢倉喪壮奏爽宋層匝惣想捜掃挿掻
4160	操早曹巣槍槽漕燥争痩相窓糟総綜聡
4170	草荘葬蒼藻装走送遭鎗霜騒像増憎

	0 1 2 3 4 5 6 7 8 9 A B C D E F
3820	次滋治爾璽痔磁示而耳自蒔辞汐鹿
3830	式識鴫竺軸宍雫七叱執失嫉室悉湿漆
3840	疾質実蔀篠偲柴芝屡蕊縞舎写射捨赦
3850	斜煮社紗者謝車遮蛇邪借勺尺杓灼爵
3860	酌釈錫若寂弱惹主取守手朱殊狩珠種
3870	腫趣酒首儒受呪寿授樹綬需囚収周

	0 1 2 3 4 5 6 7 8 9 A B C D E F
4220	臓蔵贈造促側則即息捉束測足速俗
4230	属賊族続卒袖其揃存孫尊損村遜他多
4240	太汰詑唾堕妥惰打柁舵楕陀駄騨体堆
4250	対耐岱帯待怠態戴替泰滞胎腿苔袋貸
4260	退逮隊黛鯛代台大第醍題鷹滝瀧卓啄
4270	宅托択拓沢濯琢託鐸濁諾茸凧蛸只

	0 1 2 3 4 5 6 7 8 9 A B C D E F
3820	宗就州修愁拾洲秀秋終繍習臭舟蒐
3830	衆襲讐蹴輯週酋酬集醜什住充十従戎
3840	柔汁渋獣縦重銃叔夙宿淑祝縮粛塾熟
3850	出術述俊峻春瞬竣舜駿准循旬楯殉淳
3860	準潤盾純巡遵醇順処初所暑曙渚庶緒
3870	署書薯藷諸助叙女序徐恕鋤除傷償

	0 1 2 3 4 5 6 7 8 9 A B C D E F
4320	叩但達辰奪脱巽竪辿棚谷狸鱈樽誰
4330	丹単嘆坦担探旦歎淡湛炭短端箪綻耽
4340	胆蛋誕鍛団壇弾断暖檀段男談値知地
4350	弛恥智池痴稚置致蜘遅馳築畜竹筑蓄
4360	逐秩窒茶嫡着中仲宙忠抽昼柱注虫衷
4370	註酎鋳駐樗瀦猪苧著貯丁兆凋喋寵

	0 1 2 3 4 5 6 7 8 9 A B C D E F
3820	勝匠升召哨商唱嘗奨妾娼宵将小少
3830	尚庄床廠彰承抄招掌捷昇昌昭晶松梢
3840	樟樵沼消渉湘焼焦照症省硝礁祥称章
3850	笑粧紹肖菖蒋蕉衝裳訟証詔詳象賞醤
3860	鉦鍾鐘障鞘上丈丞乗冗剰城堰壌嬢常
3870	情擾条杖浄状畳穣蒸譲醸錠嘱埴飾

	0 1 2 3 4 5 6 7 8 9 A B C D E F
4420	帖帳庁弔張彫徴懲挑暢朝潮牒町眺
4430	聴脹腸蝶調諜超跳銚長頂鳥勅捗直朕
4440	沈珍賃鎮陳津墜椎槌追鎚痛通塚栓掴
4450	槻佃漬柘辻蔦綴鍔椿潰坪壷嬬紬爪吊
4460	釣鶴亭低停偵剃貞呈堤定帝底庭廷弟
4470	悌抵挺提梯汀碇禎程締艇訂諦蹄逓

	0 1 2 3 4 5 6 7 8 9 A B C D E F
4520	邸鄭釘鼎泥摘擢敵滴的笛適鏑溺哲
4530	徹撤轍迭鉄典填天展店添纏甜貼転顛
4540	点伝殿澱田電兎吐堵塗妬屠徒斗杜渡
4550	登菟賭途都鍍砥砺努度土奴怒倒党冬
4560	凍刀唐塔塘套宕島嶋悼投搭東桃梼棟
4570	盗淘湯涛灯燈当痘祷等答筒糖統到

	0 1 2 3 4 5 6 7 8 9 A B C D E F
4620	董蕩藤討謄豆踏逃透鐙陶頭騰闘働
4630	動同堂導憧撞洞瞳童胴萄道銅峠鴇匿
4640	得徳涜特督禿篤毒独読栃橡凸突椴届
4650	鳶苫寅酉瀞噸屯惇敦沌豚遁頓呑曇鈍
4660	奈那内乍凪薙謎灘捺鍋楢馴縄畷南楠
4670	軟難汝二尼弐迩匂賑肉虹廿日乳入

	0 1 2 3 4 5 6 7 8 9 A B C D E F
4720	如尿韮任妊忍認濡禰祢寧葱猫熱年
4730	念捻撚燃粘乃廼之埜嚢悩濃納能脳膿
4740	農覗蚤巴把播覇杷波派琶破婆罵芭馬
4750	俳廃拝排敗杯盃牌背肺輩配倍培媒梅
4760	楳煤狽買売賠陪這蝿秤矧萩伯剥博拍
4770	柏泊白箔粕舶薄迫曝漠爆縛莫駁麦

	0 1 2 3 4 5 6 7 8 9 A B C D E F
4820	函箱硲箸肇筈櫨幡肌畑畠八鉢溌発
4830	醗髪伐罰抜筏閥鳩噺塙蛤隼伴判半反
4840	叛帆搬斑板氾汎版犯班畔繁般藩販範
4850	采煩頒飯挽晩番盤磐蕃蛮匪卑否妃庇
4860	彼悲扉批披斐比泌疲皮碑秘緋罷肥被
4870	誹費避非飛樋簸備尾微枇毘琵眉美

	0 1 2 3 4 5 6 7 8 9 A B C D E F
4920	鼻柊稗匹疋髭彦膝菱肘弼必畢筆逼
4930	桧姫媛紐百謬俵彪標氷漂瓢票表評豹
4940	廟描病秒苗錨鋲蒜蛭鰭品彬斌浜瀕貧
4950	賓頻敏瓶不付埠夫婦富冨布府怖扶敷
4960	斧普浮父符腐膚芙譜負賦赴阜附侮撫
4970	武舞葡蕪部封楓風葺蕗伏副復幅服

	0 1 2 3 4 5 6 7 8 9 A B C D E F
4420	福腹複覆淵弗払沸仏物鮒分吻噴墳
4430	憤扮焚奮粉糞紛雰文聞丙併兵塀幣平
4440	弊柄並蔽閉陛米頁僻壁癖碧別瞥蔑箆
4450	偏変片篇編辺返遍便勉娩弁鞭保舗鋪
4460	圃捕歩甫補輔穂募墓慕戊暮母簿菩倣
4470	俸包呆報奉宝峰峯崩庖抱捧放方朋

	0 1 2 3 4 5 6 7 8 9 A B C D E F
4420	法泡烹砲縫胞芳萌蓬蜂褒訪豊邦鋒
4430	飽鳳鵬乏亡傍剖坊妨帽忘忙房暴望某
4440	棒冒紡肪膨謀貌貿鉾防吠頬北僕卜墨
4450	撲朴牧睦穆釦勃没殆堀幌奔本翻凡盆
4460	摩磨魔麻埋妹昧枚毎哩槙幕膜枕鮪柾
4470	鱒桝亦俣又抹末沫迄侭繭麿万慢満

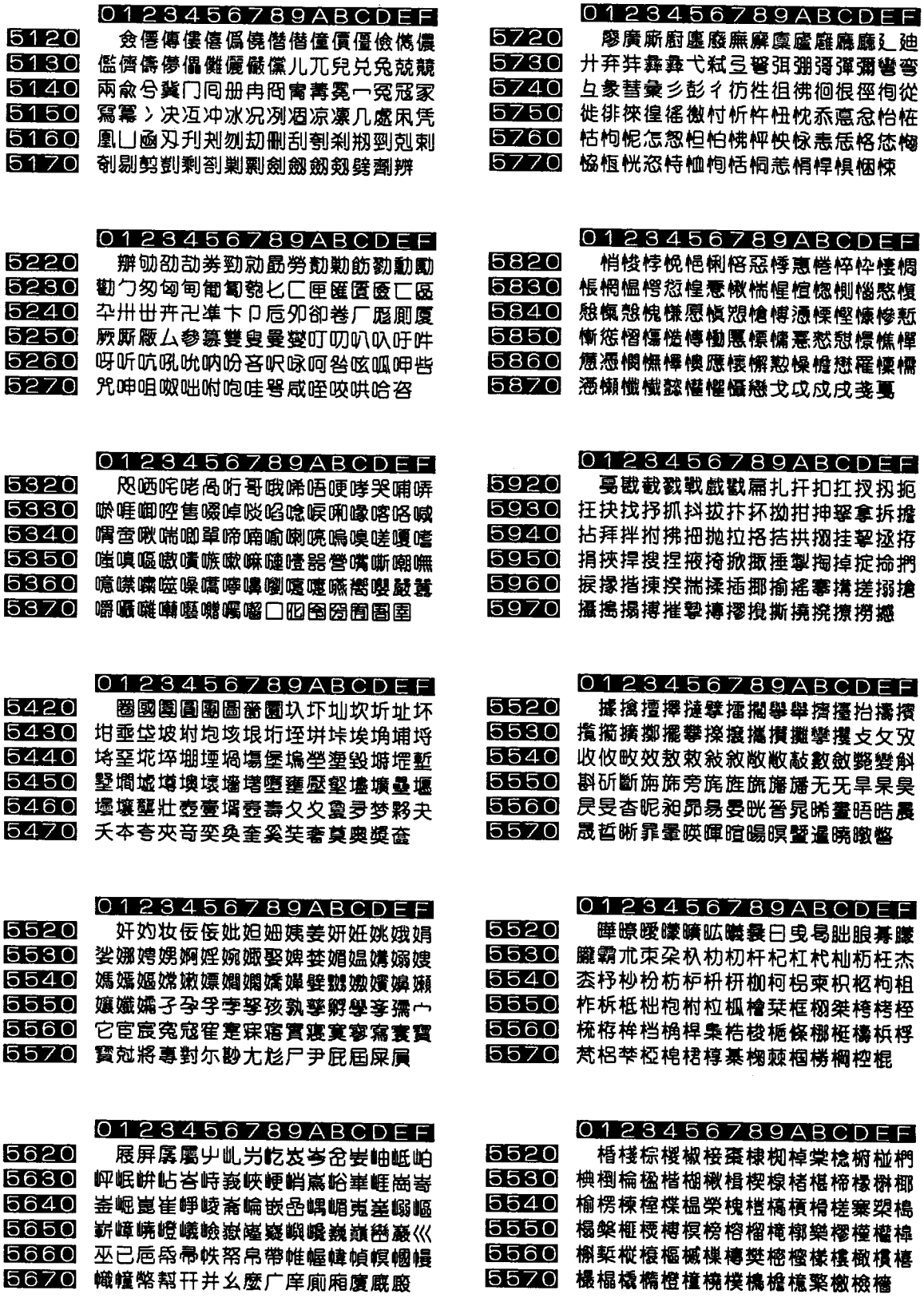
	0 1 2 3 4 5 6 7 8 9 A B C D E F
4420	漫蔓味未魅巳箕岬密蜜湊蓑稔脈妙
4430	粍民眠務夢無牟矛霧鵡椋婿娘冥名命
4440	明盟迷銘鳴姪牝滅免棉綿緬面麺摸模
4450	茂妄孟毛猛盲網耗蒙儲木黙目杢勿餅
4460	尤戻籾貰問悶紋門匁也冶夜爺耶野弥
4470	矢厄役約薬訳躍靖柳薮鑓愉愈油癒

	0 1 2 3 4 5 6 7 8 9 A B C D E F
4420	諭輸唯佑優勇友宥幽悠憂揖有柚湧
4430	涌猶猷由祐裕誘遊邑郵雄融夕予余与
4440	誉輿預傭幼妖容庸揚揺擁曜楊様洋溶
4450	熔用窯羊耀葉蓉要謡踊遥陽養慾抑欲
4460	沃浴翌翼淀羅螺裸来莱頼雷洛絡落酪
4470	乱卵嵐欄濫藍蘭覧利吏履李梨理璃

	0 1 2 3 4 5 6 7 8 9 A B C D E F
4420	痢裏裡里離陸律率立葎掠略劉流溜
4430	琉留硫粒隆竜龍侶慮旅虜了亮僚両凌
4440	寮料梁涼猟療瞭稜糧良諒遼量陵領力
4450	緑倫厘林淋燐琳臨輪隣鱗麟瑠塁涙累
4460	類令伶例冷励嶺怜玲礼苓鈴隷零霊麗
4470	齢暦歴列劣烈裂廉恋憐漣煉簾練聯

	0 1 2 3 4 5 6 7 8 9 A B C D E F
4420	蓮連錬呂魯櫓炉賂路露労婁廊弄朗
4430	楼榔浪漏牢狼篭老聾蝋郎六麓禄肋録
4440	論倭和話歪賄脇惑枠鷲亙亘鰐詫藁蕨
4450	椀湾碗腕
4460	
4470	

	0 1 2 3 4 5 6 7 8 9 A B C D E F
5020	弋丐丕个丱丶并丿乂乖乘亂亅豫事
5030	舒弍于亞亟亠亢京亳亶从仍仄仆仂仗
5040	仞仭仟价伉佚估佛何佗佇佶侈侏侘佻
5050	佩佰侑佯來侖儘俔俟俎俘俛俑俚俐俤
5060	俥倚倨倔倪倥倅伜俶倡倩倬俾俯們倆
5070	偃假會偕偬偈偖偐偸傚傀傚傅傴傲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5520		檗	蘗	檻	櫃	櫂	檸	檳	檬	櫞	櫑	櫟	檪	櫚	櫪	櫻
5530	欅	蘖	櫺	欒	欖	鬱	欟	欸	欷	盜	欹	飮	歇	歃	歉	歐
5540	歙	歔	歛	歟	歡	歸	歹	歿	殀	殄	殃	殍	殘	殕	殞	殤
5550	殪	殫	殯	殲	殱	殳	殷	殼	毆	毋	毓	毟	毬	毫	毳	毯
5560	麾	氈	氓	气	氛	氤	氣	汞	汕	汢	汪	沂	沍	沚	沁	沛
5570	汾	汨	汳	沒	沐	泄	泱	泓	沽	泗	泅	泝	沮	沱	沾	

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5520		沺	泛	泯	泙	泪	洟	衍	洶	洫	洽	洸	洙	洵	洳	洒
5530	洌	浣	涓	浤	浚	浹	浙	涎	涕	濤	涅	淹	渕	渊	涵	淇
5540	淦	涸	淆	淬	淞	淌	淨	淒	淅	淺	淙	淤	淕	淪	淮	渭
5550	湮	渮	渙	湲	湟	渾	渣	湫	渫	湶	湍	渟	湃	渺	湎	渤
5560	滿	渝	游	溂	溪	溘	滉	溷	滓	溽	溯	滄	溲	滔	滕	溏
5570	溥	滂	溟	潁	漑	灌	滬	滸	滾	漿	滲	漱	滯	漲	滌	

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5520		漾	漓	滷	澆	潺	潸	澁	澀	潯	潛	濳	潭	澂	潼	潘
5530	澎	澑	濂	潦	澳	澣	澡	澤	澹	濆	澪	濟	濕	濬	濔	濘
5540	濱	濮	濛	瀉	瀋	濺	瀑	瀁	瀏	濾	瀛	瀚	潴	瀝	瀘	瀟
5550	瀰	瀾	瀲	灑	灣	炙	炒	炯	烱	炬	炸	炳	炮	烟	烋	烝
5560	烙	焉	烽	焜	焙	煥	煕	熈	煦	煢	煌	煖	煬	熏	燻	熄
5570	熕	熨	熬	燗	熹	熾	燒	燉	燔	燎	燠	燬	燧	燵	燼	

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6020		燹	燿	爍	爐	爛	爨	爭	爬	爰	爲	爻	爼	爿	牀	牆
6030	牋	牘	牴	牾	犂	犁	犇	犒	犖	犢	犧	犹	犲	狃	狆	狄
6040	狎	狒	狢	狠	狡	狹	狷	倏	猗	猊	猜	猖	猝	猴	猯	猩
6050	猥	猾	獎	獏	默	獗	獪	獨	獰	獸	獵	獻	獺	珈	玳	珎
6060	玻	珀	珥	珮	珞	璢	琅	瑯	琥	珸	琲	琺	瑕	琿	瑟	瑙
6070	瑁	瑜	瑩	瑰	瑣	瑪	瑶	瑾	璋	璞	璧	瓊	瓏	瓔	珱	

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
6120		瓠	瓣	瓧	瓩	瓮	瓲	瓰	瓱	瓸	瓷	甄	甃	甅	甌	甎
6130	甍	甕	甓	甞	甦	甬	甼	畄	畍	畊	畉	畛	畆	畚	畩	畤
6140	畧	畫	畭	畸	當	疆	疇	畴	疊	疉	疂	疔	疚	疝	疥	疣
6150	痂	疳	痃	疵	疽	疸	疼	疱	痍	痊	痒	痙	痣	痞	痾	痿
6160	痼	瘁	痰	痺	痲	痳	瘋	瘍	瘉	瘟	瘧	瘠	瘡	瘢	瘤	瘴
6170	瘰	瘻	癇	癈	癆	癜	癘	癡	癢	癨	癩	癪	癧	癬	癰	

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
6220		癲	癶	癸	發	皀	皃	皈	皋	皎	皖	皓	皙	皚	皰	皴
6230	皸	皹	皺	盂	盍	盖	盒	盞	盡	盥	盧	盪	蘯	盻	眈	眇
6240	眄	眩	眤	眞	眥	眦	眛	眷	眸	睇	睚	睨	睫	睛	睥	睿
6250	睾	睹	瞎	瞋	瞑	瞠	瞞	瞰	瞶	瞹	瞿	瞼	瞽	瞻	矇	矍
6260	矗	矚	矜	矣	矮	矼	砌	砒	礦	砠	礪	硅	碎	硴	碆	硼
6270	碚	碌	碣	碵	碪	碯	磑	磆	磋	磔	碾	碼	磅	磊	磬	

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
6320		磧	磚	磽	磴	礇	礒	礑	礙	礬	礫	祀	祠	祗	祟	祚
6330	祕	祓	祺	祿	禊	禝	禧	齋	禪	禮	禳	禹	禺	秉	秕	秧
6340	秬	秡	秣	稈	稍	稘	稙	稠	稟	禀	稱	稻	稾	稷	穃	穗
6350	穉	穡	穢	穩	龝	穰	穹	穽	窈	窗	窕	窘	窖	窩	竈	窰
6360	窶	竅	竄	窿	邃	竇	竊	竍	竏	竕	竓	站	竚	竝	竡	竢
6370	竦	竭	竰	笂	笏	笊	笆	笳	笘	笙	笞	笵	笨	笶	筐	

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
6420		筺	笄	筍	笋	筌	筅	筵	筥	筴	筧	筰	筱	筬	筮	箝
6430	箘	箟	箍	箜	箚	箋	箒	箏	筝	箙	篋	篁	篌	篏	箴	篆
6440	篝	篩	簑	簔	篦	篥	籠	簀	簇	簓	篳	篷	簗	簍	篶	簣
6450	簧	簪	簟	簷	簫	簽	籌	籃	籔	籏	籀	籐	籘	籟	籤	籖
6460	籥	籬	籵	粃	粐	粤	粭	粢	粫	粡	粨	粳	粲	粱	粮	粹
6470	粽	糀	糅	糂	糘	糒	糜	糢	鬻	糯	糲	糴	糶	糺	紆	

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
6520		紂	紜	紕	紊	絅	絋	紮	紲	紿	紵	絆	絳	絖	絎	絲
6530	絨	絮	絏	絣	經	綉	絛	綏	絽	綛	綺	綮	綣	綵	緇	綽
6540	綫	總	綢	綯	緜	綸	綟	綰	緘	緝	緤	緞	緻	緲	緡	縅
6550	縊	縣	縡	縒	縱	縟	縉	縋	縢	繆	繦	縻	縵	縹	繃	縷
6560	縲	縺	繧	繝	繖	繞	繙	繚	繹	繪	繩	繼	繻	纃	緕	繽
6570	辮	繿	纈	纉	續	纒	纐	纓	纔	纖	纎	纛	纜	缸	缺	

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
6620		罅	罌	罍	罎	罐	网	罕	罔	罘	罟	罠	罨	罩	罧	罸
6630	羂	羆	羃	羈	羇	羌	羔	羞	羝	羚	羣	羯	羲	羹	羮	羶
6640	羸	譱	翅	翆	翊	翕	翔	翡	翦	翩	翳	翹	飜	耆	耄	耋
6650	耒	耘	耙	耜	耡	耨	耿	耻	聊	聆	聒	聘	聚	聟	聢	聨
6660	聳	聲	聰	聶	聹	聽	聿	肄	肆	肅	肛	肓	肚	肭	冐	肬
6670	胛	胥	胙	胝	胄	胚	胖	脉	胯	胱	脛	脩	脣	脯	腋	

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
6720		隋	腆	脾	腓	腑	胼	腱	腮	腥	腦	腴	膃	膈	膊	膀
6730	膂	膠	膕	膤	膣	腟	膓	膩	膰	膵	膾	膸	膽	臀	臂	膺
6740	臉	臍	臑	臙	臘	臈	臚	臟	臠	臧	臺	臻	臾	舁	舂	舅
6750	與	舊	舍	舐	舖	舩	舫	舸	舳	艀	艙	艘	艝	艚	艟	艤
6760	艢	艨	艪	艫	舮	艱	艷	艸	艾	芍	芒	芫	芟	芻	芬	苡
6770	苣	苟	苒	苴	苳	苺	莓	范	苻	苹	苞	茆	苜	茉	苙	

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
6820		茵	茴	茖	茲	茱	荀	茹	荐	荅	茯	茫	茗	茘	莅	莚
6830	莪	莟	莢	莖	茣	莎	莇	莊	荼	莵	荳	荵	莠	莉	莨	菴
6840	萓	菫	菎	菽	萃	菘	萋	菁	菷	萇	菠	菲	萍	萢	萠	莽
6850	萸	蔆	菻	葭	萪	萼	蕚	蒄	葷	葫	蒭	葮	蒂	葩	葆	萬
6860	葯	葹	萵	蓊	葢	蒹	蒿	蒟	蓙	蓍	蒻	蓚	蓐	蓁	蓆	蓖
6870	蒡	蔡	蓿	蓴	蔗	蔘	蔬	蔟	蔕	蔔	蓼	蕀	蕣	蕘	蕈	

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
6920		蕁	蘂	蕋	蕕	薀	薤	薈	薑	薊	薨	蕭	薔	薛	藪	薇
6930	薜	蕷	蕾	薐	藉	薺	藏	薹	藐	藕	藝	藥	藜	藹	蘊	蘓
6940	蘋	藾	藺	蘆	蘢	蘚	蘰	蘿	虍	乕	虔	號	虧	虱	蚓	蚣
6950	蚩	蚪	蚋	蚌	蚶	蚯	蛄	蛆	蚰	蛉	蠣	蚫	蛔	蛞	蛩	蛬
6960	蛟	蛛	蛯	蜒	蜆	蜈	蜀	蜃	蛻	蜑	蜉	蜍	蛹	蜊	蜴	蜿
6970	蜷	蜻	蜥	蜩	蜚	蝠	蝟	蝸	蝌	蝎	蝴	蝗	蝨	蝮	蝙	

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
6620		蝓	蝣	蝪	蠅	螢	螟	螂	螯	蟋	螽	蟀	蟐	雖	螫	蟄
6630	螳	蟇	蟆	螻	蟯	蟲	蟠	蠏	蠍	蟾	蟶	蟷	蠎	蟒	蠑	蠖
6640	蠕	蠢	蠡	蠱	蠶	蠹	蠧	蠻	衄	衂	衒	衙	衞	衢	衫	袁
6650	衾	袞	衵	衽	袵	衲	袂	袗	袒	袮	袙	袢	袍	袤	袰	袿
6660	袱	裃	裄	裔	裘	裙	裝	裹	褂	裼	裴	裨	裲	褄	褌	褊
6670	褓	襃	褞	褥	褪	褫	襁	襄	褻	褶	褸	襌	褝	襠	襞	

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
6620		襦	襤	襭	襪	襯	襴	襷	襾	覃	覈	覊	覓	覘	覡	覩
6630	覦	覬	覯	覲	覺	覽	覿	觀	觚	觜	觝	觧	觴	觸	訃	訖
6640	訐	訌	訛	訝	訥	訶	詁	詛	詒	詆	詈	詼	詭	詬	詢	誅
6650	誂	誄	誨	誡	誑	誥	誦	誚	誣	諄	諍	諂	諚	諫	諳	諧
6660	諤	諱	謔	諠	諢	諷	諞	諛	謌	謇	謚	諡	謖	謐	謗	謠
6670	謳	鞫	謦	謫	謾	謨	譁	譌	譏	譎	證	譖	譛	譚	譫	

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
6620		譟	譬	譯	譴	譽	讀	讌	讎	讒	讓	讖	讙	讚	谺	豁
6630	谿	豈	豌	豎	豐	豕	豢	豬	豸	豺	貂	貉	貅	貊	貍	貎
6640	貔	豼	貘	戝	貭	貪	貽	貲	貳	貮	貶	賈	賁	賤	賣	賚
6650	賽	賺	賻	贄	贅	贊	贇	贏	贍	贐	齎	贓	賍	贔	贖	赧
6660	赭	赱	赳	趁	趙	跂	趾	趺	跏	跚	跖	跌	跛	跋	跪	跫
6670	跟	跣	跼	踈	踉	跿	踝	踞	踐	踟	蹂	踵	踰	踴	蹊	

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
6620		蹇	蹉	蹌	蹐	蹈	蹙	蹤	蹠	踪	蹣	蹕	蹶	蹲	蹼	躁
6630	躇	躅	躄	躋	躊	躓	躑	躔	躙	躪	躡	躬	躰	軆	躱	躾
6640	軅	軈	軋	軛	軣	軼	軻	軫	軾	輊	輅	輕	輒	輙	輓	輜
6650	輟	輛	輌	輦	輳	輻	輹	轅	轂	輾	轌	轉	轆	轎	轗	轜
6660	轢	轣	轤	辜	辟	辣	辭	辯	辷	迚	迥	迢	迪	迯	邇	迴
6670	逅	迹	迺	逑	逕	逡	逍	逞	逖	逋	逧	逶	逵	逹	迸	

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
6620		遏	遐	遑	遒	逎	遉	逾	遖	遘	遞	遨	遯	遶	隨	遲
6630	邂	遽	邁	邀	邊	邉	邏	邨	邯	邱	邵	郢	郤	扈	郛	鄂
6640	鄒	鄙	鄲	鄰	酊	酖	酘	酣	酥	酩	酳	酲	醋	醉	醂	醢
6650	醫	醯	醪	醵	醴	醺	釀	釁	釉	釋	釐	釖	釟	釡	釛	釼
6660	釵	釶	鈞	釿	鈔	鈬	鈕	鈑	鉞	鉗	鉅	鉉	鉤	鉈	銕	鈿
6670	鉋	鉐	銜	銖	銓	銛	鉚	鋏	銹	銷	鋩	錏	鋺	鍄	錮	

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
6620		錙	錢	錚	錣	錺	錵	錻	鍜	鍠	鍼	鍮	鍖	鎰	鎬	鎭
6630	鎔	鎹	鏖	鏗	鏨	鏥	鏘	鏃	鏝	鏐	鏈	鏤	鐚	鐔	鐓	鐃
6640	鐇	鐐	鐶	鐫	鐵	鐡	鐺	鑁	鑒	鑄	鑛	鑠	鑢	鑞	鑪	鈩
6650	鑰	鑵	鑷	鑽	鑚	鑼	鑾	钁	鑿	閂	閇	閊	閔	閖	閘	閙
6660	閠	閨	閧	閭	閼	閻	閹	閾	闊	濶	闃	闍	闌	闕	闔	闖
6670	關	闡	闥	闢	阡	阨	阮	阯	陂	陌	陏	陋	陷	陜	陞	

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
7020		陝	陟	陦	陲	陬	隍	隘	隕	隗	險	隧	隱	隲	隰	隴
7030	隶	隸	隹	雎	雋	雉	雍	襍	雜	霍	雕	雹	霄	霆	霈	霓
7040	霎	霑	霏	霖	霙	霤	霪	霰	霹	霽	霾	靄	靆	靈	靂	靉
7050	靜	靠	靤	靦	靨	勒	靫	靱	靹	鞅	靼	鞁	靺	鞆	鞋	鞏
7060	鞐	鞜	鞨	鞦	鞣	鞳	鞴	韃	韆	韈	韋	韜	韭	齏	韲	竟
7070	韶	韵	頏	頌	頸	頤	頡	頷	頽	顆	顏	顋	顫	顯	顰	

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
7120		顱	顴	顳	颪	颯	颱	颶	飄	飃	飆	飩	飫	餃	餉	餒
7130	餔	餘	餡	餝	餞	餤	餠	餬	餮	餽	餾	饂	饉	饅	饐	饋
7140	饑	饒	饌	饕	馗	馘	馥	馭	馮	馼	駟	駛	駝	駘	駑	駭
7150	駮	駱	駲	駻	駸	騁	騏	騅	駢	騙	騫	騷	驅	驂	驀	驃
7160	騾	驕	驍	驛	驗	驟	驢	驥	驤	驩	驫	驪	骭	骰	骼	髀
7170	髏	髑	髓	體	髞	髟	髢	髣	髦	髯	髫	髮	髴	髱	髷	

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
7220		髻	鬆	鬘	鬚	鬟	鬢	鬣	鬥	鬧	鬨	鬩	鬪	鬮	鬯	鬲
7230	魄	魃	魏	魍	魎	魑	魘	魴	鮓	鮃	鮑	鮖	鮗	鮟	鮠	鮨
7240	鮴	鯀	鯊	鮹	鯆	鯏	鯑	鯒	鯣	鯢	鯤	鯔	鯡	鰺	鯲	鯱
7250	鯰	鰕	鰔	鰉	鰓	鰌	鰆	鰈	鰒	鰊	鰄	鰮	鰛	鰥	鰤	鰡
7260	鰰	鱇	鰲	鱆	鰾	鱚	鱠	鱧	鱶	鱸	鳧	鳬	鳰	鴉	鴈	鳫
7270	鴃	鴆	鴪	鴦	鶯	鴣	鴟	鵄	鴕	鴒	鵁	鴿	鴾	鵆	鵈	

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
7320		鵝	鵞	鵤	鵑	鵐	鵙	鵲	鶉	鶇	鶫	鵯	鵺	鶚	鶤	鶩
7330	鶲	鷄	鷁	鶻	鶸	鶺	鷆	鷏	鷂	鷙	鷓	鷸	鷦	鷭	鷯	鷽
7340	鸚	鸛	鸞	鹵	鹹	鹽	麁	麈	麋	麌	麒	麕	麑	麝	麥	麩
7350	麸	麪	麭	靡	黌	黎	黏	黐	黔	黜	點	黝	黠	黥	黨	黯
7360	黴	黶	黷	黹	黻	黼	黽	鼇	鼈	皷	鼕	鼡	鼬	鼾	齊	齒
7370	齔	齣	齟	齠	齡	齦	齧	齬	齪	齷	齲	齶	龕	龜	龠	

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
7420		堯	槓	遙	瑤											
7430																
7440																
7450																
7460																
7470																

5-2-2 SHIFT-JIS Codes

	0 1 2 3 4 5 6 7 8 9 A B C D E F
8140	、。，．・：；？！゛゜´｀¨＾
8150	￣＿ヽヾゝゞ〃仝々〆〇ー―‐／＼
8160	～∥｜…‥‘’“”（）〔〕［］｛
8170	｝〈〉《》「」『』【】＋－±×
8180	÷＝≠＜＞≦≧∞∴♂♀°′″℃¥
8190	＄￠￡％＃＆＊＠§☆★○●◎◇◆
81A0	□■△▲▽▼※〒→←↑↓〓
81B0	∈∋⊆⊇⊂⊃∪∩
81C0	∧∨￢⇒⇔∀∃
81D0	∠⊥⌒∂∇≡
81E0	≒≪≫√∽∝∵∫∬
81F0	Å‰♯♭♪†‡¶ ○

	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
8240	０
8250	１２３４５６７８９
8260	ＡＢＣＤＥＦＧＨＩＪＫＬＭＮＯＰ
8270	ＱＲＳＴＵＶＷＸＹＺ
8280	ａｂｃｄｅｆｇｈｉｊｋｌｍｎｏ
8290	ｐｑｒｓｔｕｖｗｘｙｚ ぁ
82A0	あぃいぅうぇえぉおかがきぎくぐけ
82B0	げこごさざしじすずせぜそぞただち
82C0	ぢっつづてでとどなにぬねのはばぱ
82D0	ひびぴふぶぷへべぺほぼぽまみむめ
82E0	もゃやゅゆょよらりるれろゎわゐゑ
82F0	をん

	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	
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	0 1 2 3 4 5 6 7 8 9 A B C D E F
8340	ァアィイゥウェエォオカガキギクグ
8350	ケゲコゴサザシジスズセゼソゾタダ
8360	チヂッツヅテデトドナニヌネノハバ
8370	パヒビピフブプヘベペホボポマミ
8380	ムメモャヤュユョヨラリルレロヮワ
8390	ヰヱヲンヴヵヶ Α
83A0	ΒΓΔΕΖΗΘΙΚΛΜΝΞΟΠΡ
83B0	ΣΤΥΦΧΨΩ α
83C0	βγδεζηθικλμνξοπρ
83D0	στυφχψω
83E0	
83F0	

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	0 1 2 3 4 5 6 7 8 9 A B C D E F
8440	АБВГДЕЁЖЗИЙКЛМНО
8450	ПРСТУФХЦЧШЩЪЫЬЭЮ
8460	Я
8470	абвгдеёжзийклмн
8480	опрстуфхцчшщъыьэ
8490	юя ─
84A0	│┌┐┘└├┬┤┴┼━┃┏┓┛┗
84B0	┣┳┫┻╋┠┯┨┷┿┝┰┥┸╂
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8890	亜
88A0	唖娃阿哀愛挨姶逢葵茜穐悪握渥旭葦
88B0	芦鯵梓圧斡扱宛姐虻飴絢綾鮎或粟袷
88C0	安庵按暗案闇鞍杏以伊位依偉囲夷委
88D0	威尉惟意慰易椅為畏異移維緯胃萎衣
88E0	謂違遺医井亥域育郁磯一壱溢逸稲茨
88F0	芋鰯允印咽員因姻引飲淫胤蔭

	0 1 2 3 4 5 6 7 8 9 A B C D E F
8940	院陰隠韻吋右宇烏羽迂雨卯鵜窺丑碓
8950	臼渦嘘唄欝蔚鰻姥厩浦瓜閏噂云運雲
8960	荏餌叡営嬰影映曳栄永泳洩瑛盈穎頴
8970	英衛詠鋭液疫益駅悦謁越閲榎厭円
8980	園堰奄宴延怨掩援沿演炎焔煙燕猿縁
8990	艶苑薗遠鉛鴛塩於汚甥凹央奥往応押
89A0	旺横欧殴王翁襖鴬鴎黄岡沖荻億屋憶
89B0	臆桶牡乙俺卸恩温穏音下化仮何伽価
89C0	佳加可嘉夏嫁家寡科暇果架歌河火珂
89D0	禍禾稼箇花苛茄荷華菓蝦課嘩貨迦過
89E0	霞蚊俄峨我牙画臥芽蛾賀雅餓駕介会
89F0	解回塊壊廻快怪悔恢懐戒拐改

	0 1 2 3 4 5 6 7 8 9 A B C D E F
8D40	后喉坑垢好孔孝宏工巧巷幸広庚康弘
8D50	恒慌抗拘控攻昂晃更杭校梗構江洪浩
8D60	港溝甲皇硬稿糠紅紘絞綱耕考肯肱腔
8D70	膏航荒行衡講貢購郊酵鉱砿鋼閤降
8D80	項香高鴻剛劫号合壕拷濠豪轟麹克刻
8D90	告国穀酷鵠黒獄漉腰甑忽惚骨狛込此
8DA0	頃今困坤墾婚恨懇昏昆根梱混痕紺艮
8DB0	魂些佐叉唆嵯左差査沙瑳砂詐鎖裟坐
8DC0	座挫債催再最哉塞妻宰彩才採栽歳済
8DD0	災采犀砕砦祭斎細菜裁載際剤在材罪
8DE0	財冴坂阪堺榊肴咲崎埼碕鷺作削咋搾
8DF0	昨朔柵窄策索錯桜鮭笹匙冊刷

	0 1 2 3 4 5 6 7 8 9 A B C D E F
8A40	魁晒械海灰界皆絵芥蟹開階貝凱劾外
8A50	咳害崖慨概涯碍蓋街該鎧骸浬馨蛙垣
8A60	柿蛎鈎劃嚇各廓拡撹格核殻獲確穫覚
8A70	角赫較郭閣隔革学岳楽額顎掛笠樫
8A80	橿梶鰍潟割喝恰括活渇滑葛褐轄且鰹
8A90	叶椛樺鞄株兜竃蒲釜鎌噛鴨栢茅萱粥
8AA0	刈苅瓦乾侃冠寒刊勘勧巻喚堪姦完官
8AB0	寛干幹患感慣憾換敢柑桓棺款歓汗漢
8AC0	潤潅環甘監看竿管簡緩缶翰肝艦莞観
8AD0	諌貫還鑑間閑関陥韓館舘丸含岸巌玩
8AE0	癌眼岩翫贋雁頑顔願企伎危喜器基奇
8AF0	嬉寄岐希幾忌揮机旗既期棋棄

	0 1 2 3 4 5 6 7 8 9 A B C D E F
8E40	察拶撮擦札殺薩雑皐鯖捌錆鮫皿晒三
8E50	傘参山惨撒散桟燦珊産算纂蚕讃賛酸
8E60	餐斬暫残仕仔伺使刺司史嗣四士始姉
8E70	姿子屍市師志思指支孜斯施旨枝止
8E80	死氏獅祉私糸紙紫肢脂至視詞詩試誌
8E90	諮資賜雌飼歯事似侍児字寺慈持時次
8EA0	滋治爾璽痔磁示而耳自蒔辞汐鹿式識
8EB0	鴫竺軸宍雫七叱執失嫉室悉湿漆疾質
8EC0	実蔀篠偲柴芝屡蕊縞舎写射捨赦斜煮
8ED0	社紗者謝車遮蛇邪借勺尺杓灼爵酌釈
8EE0	錫若寂弱惹主取守手朱殊狩珠種腫趣
8EF0	酒首儒受呪寿授樹綬需囚収周

	0 1 2 3 4 5 6 7 8 9 A B C D E F
8B40	機帰毅気汽畿祈季稀紀徽規記貴起軌
8B50	輝飢騎鬼亀偽儀妓宜戯技擬欺犠疑祇
8B60	義蟻誼議掬菊鞠吉吃喫桔橘詰砧杵黍
8B70	却客脚虐逆丘久仇休及吸宮弓急救
8B80	朽求汲泣灸球究窮笈級糾給旧牛去居
8B90	巨拒拠挙渠虚許距鋸漁凖魚亨享京供
8BA0	侠僑兇競共凶協匡卿叫喬境峡強彊怯
8BB0	恐恭挟教橋況狂狭矯胸脅興蕎郷鏡響
8BC0	饗驚仰凝尭暁業局曲極玉桐粁僅勤均
8BD0	巾錦斤欣欽琴禁禽筋緊芹菌衿襟謹近
8BE0	金吟銀九倶句区狗玖矩苦躯駆駈駒具
8BF0	愚虞喰空偶寓遇隅串櫛釧屑屈

	0 1 2 3 4 5 6 7 8 9 A B C D E F
8F40	宗就州修愁拾洲秀秋終繍習臭舟蒐衆
8F50	襲讐蹴輯週酋酬集醜什住充十従戎柔
8F60	汁渋獣縦重銃叔夙宿淑祝縮粛塾熟出
8F70	術述俊峻春瞬竣舜駿准循旬楯殉淳
8F80	準潤盾純巡遵醇順処初所暑曙渚庶緒
8F90	署書薯藷諸助叙女序徐恕鋤除傷償勝
8FA0	匠升召哨商唱嘗奨妾娼宵将小少尚庄
8FB0	床廠彰承抄招掌捷昇昌昭晶松梢樟樵
8FC0	沼消渉湘焼焦照症省硝礁祥称章笑粧
8FD0	紹肖菖蒋蕉衝裳訟証詔詳象賞醤鉦鍾
8FE0	鐘障鞘上丈丞乗冗剰城場壌嬢常情擾
8FF0	条杖浄状畳穣蒸譲醸錠嘱埴飾

	0 1 2 3 4 5 6 7 8 9 A B C D E F
8C40	掘窟沓靴轡窪熊隈粂栗繰桑鍬勲君薫
8C50	訓群軍郡卦袈祁係傾刑兄啓圭珪型契
8C60	形径恵慶慧憩掲携敬景桂渓畦稽系経
8C70	継繋罫茎荊蛍計詣警軽頚鶏芸迎鯨
8C80	劇戟撃激隙桁傑欠決潔穴結血訣月件
8C90	倹倦健兼券剣喧圏堅嫌建憲懸拳捲検
8CA0	権牽犬献研硯絹県肩見謙賢軒遣鍵険
8CB0	顕験懸元原厳幻弦減源玄現絃舷言諺
8CC0	限乎個古呼固姑孤己庫弧戸故枯湖狐
8CD0	糊袴股胡菰虎誇跨鈷雇顧鼓五互伍午
8CE0	呉吾娯後御悟梧檎瑚碁語誤護醐乞鯉
8CF0	交佼侯候倖光公功効勾厚□向

	0 1 2 3 4 5 6 7 8 9 A B C D E F
9040	拭植殖燭織職色触食蝕辱尻伸信侵唇
9050	娠寝審心慎振新晋森榛浸深申疹真神
9060	秦紳臣芯薪親診身辛進針震人仁刃塵
9070	壬尋甚尽腎訊迅陣靭笥諏須酢図厨
9080	逗吹垂帥推水炊睡粋翠衰遂酔錐錘随
9090	瑞髄崇嵩数枢趨雛据杉椙菅頗雀裾澄
90A0	摺寸世瀬畝是凄制勢姓征性成政整星
90B0	晴棲栖正清牲生盛精聖声製西誠誓請
90C0	逝醒青静斉税脆隻席惜戚斥昔析石積
90D0	籍績脊責赤跡蹟碩切拙接摂折設窃節
90E0	説雪絶舌蝉仙先千占宣専尖川戦扇撰
90F0	栓栴泉浅洗染潜煎煽旋穿箭線

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
9140	纖	羨	腺	舛	船	薦	詮	賎	践	選	遷	銭	銑	閃	鮮	前
9150	善	漸	然	全	禅	繕	膳	糧	噌	塑	岨	措	曾	曽	楚	狙
9160	疏	疎	礎	祖	租	粗	素	組	蘇	訴	阻	遡	鼠	僧	創	双
9170	叢	倉	喪	壮	奏	爽	宋	層	匝	惣	想	捜	掃	挿	掻	
9180	操	早	曹	巣	槍	槽	漕	燥	争	痩	相	窓	糟	総	綜	聡
9190	草	荘	葬	蒼	藻	装	走	送	遭	鎗	霜	騒	像	増	憎	臓
91A0	蔵	贈	造	促	側	則	即	息	捉	束	測	足	速	俗	属	賊
91B0	族	続	卒	袖	其	揃	存	孫	尊	損	村	遜	他	多	太	汰
91C0	詑	唾	堕	妥	惰	打	柁	舵	楕	陀	駄	騨	体	堆	対	耐
91D0	岱	帯	待	怠	態	戴	替	泰	滞	胎	腿	苔	袋	貸	退	逮
91E0	隊	黛	鯛	代	台	大	第	醍	題	鷹	滝	瀧	卓	啄	宅	托
91F0	択	拓	沢	濯	琢	託	鐸	濁	諾	茸	凧	蛸	只			

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
9540	鼻	柊	稗	匹	疋	髭	彦	膝	菱	肘	弼	必	畢	筆	逼	桧
9550	姫	媛	紐	百	謬	俵	彪	標	氷	漂	瓢	票	表	評	豹	廟
9560	描	病	秒	苗	錨	鋲	蒜	蛭	鰭	品	彬	斌	浜	瀕	貧	賓
9570	頻	敏	瓶	不	付	埠	夫	婦	富	冨	布	府	怖	扶	敷	
9580	斧	普	浮	父	符	腐	膚	芙	譜	負	賦	赴	阜	附	侮	撫
9590	武	舞	葡	蕪	部	封	楓	風	葺	蕗	伏	副	復	幅	服	福
95A0	腹	複	覆	淵	弗	払	沸	仏	物	鮒	分	吻	噴	墳	憤	扮
95B0	焚	奮	粉	糞	紛	雰	文	聞	丙	併	兵	塀	幣	平	弊	柄
95C0	並	蔽	閉	陛	米	頁	僻	壁	癖	碧	別	瞥	蔑	箆	偏	変
95D0	片	篇	編	辺	返	遍	便	勉	娩	弁	鞭	保	舗	鋪	圃	捕
95E0	歩	甫	補	輔	穂	募	墓	慕	戊	暮	母	簿	菩	倣	俸	包
95F0	呆	報	奉	宝	峰	峯	崩	庖	抱	捧	放	方	朋			

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
9240	叩	但	達	辰	奪	脱	巽	竪	辿	棚	谷	狸	鱈	樽	誰	丹
9250	単	嘆	坦	担	探	旦	歎	淡	湛	炭	短	端	箪	綻	耽	胆
9260	蛋	誕	鍛	団	壇	弾	断	暖	檀	段	男	談	値	知	地	弛
9270	恥	智	池	痴	稚	置	致	蜘	遅	馳	築	畜	竹	筑	蓄	
9280	逐	秩	窒	茶	嫡	着	中	仲	宙	忠	抽	昼	柱	注	虫	衷
9290	註	酎	鋳	駐	樗	瀦	猪	苧	著	貯	丁	兆	凋	喋	寵	帖
92A0	帳	庁	弔	張	彫	徴	懲	挑	暢	朝	潮	牒	町	眺	聴	脹
92B0	腸	蝶	調	諜	超	跳	銚	長	頂	鳥	勅	捗	直	朕	沈	珍
92C0	賃	鎮	陳	津	墜	椎	槌	追	鎚	痛	通	塚	栂	掴	槻	佃
92D0	漬	柘	辻	蔦	綴	鍔	椿	潰	坪	壺	嬬	紬	爪	吊	釣	鶴
92E0	亭	低	停	偵	剃	貞	呈	堤	定	帝	底	庭	廷	弟	悌	抵
92F0	挺	提	梯	汀	碇	禎	程	締	艇	訂	諦	蹄	逓			

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
9640	法	泡	烹	砲	縫	胞	芳	萌	蓬	蜂	褒	訪	豊	邦	鋒	飽
9650	鳳	鵬	乏	亡	傍	剖	坊	妨	帽	忘	忙	房	暴	望	某	棒
9660	冒	紡	肪	膨	謀	貌	貿	鉾	防	吠	頬	北	僕	卜	墨	撲
9670	朴	牧	睦	穆	釦	勃	没	殆	堀	幌	奔	本	翻	凡	盆	
9680	摩	磨	魔	麻	埋	妹	昧	枚	毎	哩	槙	幕	膜	枕	鮪	柾
9690	鱒	桝	亦	俣	又	抹	末	沫	迄	侭	繭	麿	万	慢	満	漫
96A0	蔓	味	未	魅	巳	箕	岬	密	蜜	湊	蓑	稔	脈	妙	粍	民
96B0	眠	務	夢	無	牟	矛	霧	鵡	椋	婿	娘	冥	名	命	明	盟
96C0	迷	銘	鳴	姪	牝	滅	免	棉	綿	緬	面	麺	摸	模	茂	妄
96D0	孟	毛	猛	盲	網	耗	蒙	儲	木	黙	目	杢	勿	餅	尤	戻
96E0	籾	貰	問	悶	紋	門	匁	也	冶	夜	爺	耶	野	弥	矢	厄
96F0	役	約	薬	訳	躍	靖	柳	薮	鑓	愉	愈	油	癒			

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
9740	諭	輸	唯	佑	優	勇	友	宥	幽	悠	憂	揖	有	柚	湧	涌
9750	猶	猷	由	祐	裕	誘	遊	邑	郵	雄	融	夕	予	余	与	誉
9760	輿	預	傭	幼	妖	容	庸	揚	揺	擁	曜	楊	様	洋	溶	熔
9770	用	窯	羊	耀	葉	蓉	要	謡	踊	遥	陽	養	慾	抑	欲	
9780	沃	浴	翌	翼	淀	羅	螺	裸	来	莱	頼	雷	洛	絡	落	酪
9790	乱	卵	嵐	欄	濫	藍	蘭	覧	利	吏	履	李	梨	理	璃	痢
97A0	裏	裡	里	離	陸	律	率	立	葎	掠	略	劉	流	溜	琉	留
97B0	硫	粒	隆	竜	龍	侶	慮	旅	虜	了	亮	僚	両	凌	寮	料
97C0	梁	涼	猟	療	瞭	稜	糧	良	諒	遼	量	陵	領	力	緑	倫
97D0	厘	林	淋	燐	琳	臨	輪	隣	鱗	麟	瑠	塁	涙	累	類	令
97E0	伶	例	冷	励	嶺	怜	玲	礼	苓	鈴	隷	零	霊	麗	齢	暦
97F0	歴	列	劣	烈	裂	廉	恋	憐	漣	煉	簾	練	聯			

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
9440	如	尿	韮	任	妊	忍	認	濡	禰	祢	寧	葱	猫	熱	年	念
9450	捻	撚	燃	粘	乃	廼	之	埜	嚢	悩	濃	納	能	脳	膿	農
9460	覗	蚤	巴	把	播	覇	杷	波	派	琶	破	婆	罵	芭	馬	俳
9470	廃	拝	排	敗	杯	盃	牌	背	肺	輩	配	倍	培	媒	梅	
9480	楳	煤	狽	買	売	賠	陪	這	蝿	秤	矧	萩	伯	剥	博	拍
9490	柏	泊	白	箔	粕	舶	薄	迫	曝	漠	爆	縛	莫	駁	麦	函
94A0	箱	硲	箸	肇	筈	櫨	幡	肌	畑	畠	八	鉢	溌	発	醗	髪
94B0	伐	罰	抜	筏	閥	鳩	噺	塙	蛤	隼	伴	判	半	反	叛	帆
94C0	搬	斑	板	氾	汎	版	犯	班	畔	繁	般	藩	販	範	釆	煩
94D0	頒	飯	挽	晩	番	盤	磐	蕃	蛮	匪	卑	否	妃	庇	彼	悲
94E0	扉	批	披	斐	比	泌	疲	皮	碑	秘	緋	罷	肥	被	誹	費
94F0	避	非	飛	樋	簸	備	尾	微	枇	毘	琵	眉	美			

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
9840	蓮	連	錬	呂	魯	櫓	炉	賂	路	露	労	婁	廊	弄	朗	楼
9850	榔	浪	漏	牢	狼	篭	老	聾	蝋	郎	六	麓	禄	肋	録	論
9860	倭	和	話	歪	賄	脇	惑	枠	鷲	亙	亘	鰐	詫	藁	蕨	椀
9870	湾	碗	腕													
9880																
9890																弍
98A0	丐	丕	个	丱	丶	并	丿	乂	乖	乗	亂	亅	豫	事	舒	弍
98B0	于	亞	亟	亠	亢	亰	亳	亶	从	仍	仄	仆	仂	仗	仞	仭
98C0	仟	价	伉	佚	估	佛	佝	佗	佇	佶	侈	侏	侘	佻	佩	佰
98D0	侑	佯	來	侖	儘	俔	俟	俎	俘	俛	俑	俚	俐	俤	俥	倚
98E0	倨	倔	倪	倥	倅	伜	俶	倡	倩	倬	俾	俯	們	倆	偃	假
98F0	會	偕	偐	偈	做	俸	俺	偸	俳	倏	傅	傴	傲			

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
9940	僉	僊	僂	僖	僐	僞	僥	僭	僣	僮	價	僵	儉	儁	儂	儖
9950	儕	儔	儚	儡	儺	儷	儼	儻	儿	兀	兒	兌	兔	兢	竸	兩
9960	兪	兮	冀	冂	囘	册	冉	冏	冑	冓	冕	冖	冤	冦	冢	冩
9970	冪	冫	决	冱	冲	冰	况	冽	凅	凉	凛	几	處	凩	凭	
9980	凰	凵	凾	刄	刋	刔	刎	刧	刪	刮	刳	刹	剏	剄	剋	剌
9990	剞	剔	剪	剴	剩	剳	剿	剽	劍	劔	劒	剱	劈	劑	辨	辧
99A0	劬	劭	劼	劵	勁	勍	勗	勞	勣	勦	飭	勠	勳	勵	勸	勹
99B0	匆	匈	甸	匍	匐	匏	匕	匚	匣	匯	匱	匳	匸	區	卆	卅
99C0	丗	卉	卍	凖	卞	卩	卮	夘	卻	卷	厂	厖	厠	厦	厥	厮
99D0	厰	厶	參	簒	雙	叟	曼	燮	叮	叨	叭	叺	吁	吽	呀	听
99E0	吭	吼	吮	吶	吩	吝	呎	咏	呵	咎	呟	呱	呷	呰	咒	呻
99F0	咀	呶	咄	咐	咆	哇	咢	咸	咥	咬	哄	哈	咨			

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
9A40	咫	哂	咤	咾	咼	哘	哥	哦	唏	唔	哽	哮	哭	哺	哢	唹
9A50	啀	啣	啌	售	啜	啅	啖	啗	唸	唳	啝	喙	喀	咯	喊	喟
9A60	啻	啾	喘	喞	單	啼	喃	喩	喇	喨	嗚	嗅	嗟	嗄	嗜	嗤
9A70	嗔	嘔	嗷	嘖	嗾	嗽	嘛	嗹	噎	噐	營	嘴	嘶	嘲	嘸	
9A80	噫	噤	嘯	噬	噪	嚆	嚀	嚊	嚠	嚔	嚏	嚥	嚮	嚶	嚴	囂
9A90	嚼	囁	囃	囀	囈	囎	囑	囓	囗	囮	囹	圀	囿	圄	圉	圈
9AA0	國	圍	圓	團	圖	嗇	圜	圦	圷	圸	坎	圻	址	坏	坩	埀
9AB0	垈	坡	坿	垉	垓	垠	垳	垤	垪	垰	埃	埆	埔	埒	埓	堊
9AC0	埖	埣	堋	堙	堝	塲	堡	塢	塋	塰	毀	塒	堽	塹	墅	墹
9AD0	墟	墫	墺	壞	墻	墸	墮	壅	壓	壑	壗	壙	壘	壥	壜	壤
9AE0	壟	壯	壺	壹	壻	壼	壽	夂	夊	夐	夛	梦	夥	夬	夭	夲
9AF0	夸	夾	竒	奕	奐	奎	奚	奘	奢	奠	奧	奬	奩			

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
9B40	奸	妁	妝	佞	侫	妣	妲	姆	姨	姜	妍	姙	姚	娥	娟	娑
9B50	娜	娉	娚	婀	婬	婉	娵	娶	婢	婪	媚	媼	媾	嫋	嫂	媽
9B60	嫣	嫗	嫦	嫩	嫖	嫺	嫻	嬌	嬋	嬖	嬲	嫐	嬪	嬶	嬾	孃
9B70	孅	孀	孑	孕	孚	孛	孥	孩	孰	孳	孵	學	斈	孺	宀	
9B80	它	宦	宸	寃	寇	寉	寔	寐	寤	實	寢	寞	寥	寫	寰	寶
9B90	寳	尅	將	專	對	尓	尠	尢	尨	尸	尹	屁	屆	屎	屓	屐
9BA0	屏	孱	屬	屮	乢	屶	屹	岌	岑	岔	妛	岫	岻	岶	岼	岷
9BB0	峅	岾	峇	峙	峩	峽	峺	峭	嶌	峪	崋	崕	崗	嵜	崟	崛
9BC0	崑	崔	崢	崚	崙	崘	嵌	嵒	嵎	嵋	嵬	嵳	嵶	嶇	嶄	嶂
9BD0	嶢	嶝	嶬	嶮	嶽	嶐	嶷	嶼	巉	巍	巓	巒	巖	巛	巫	已
9BE0	巵	帋	帚	帙	帑	帛	帶	帷	幄	幃	幀	幎	幗	幔	幟	幢
9BF0	幤	幇	幵	并	幺	麼	广	庠	廁	廂	廈	廐	廏			

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
9C40	廖	廣	廝	廚	廛	廢	廡	廨	廩	廬	廱	廳	廰	廴	廸	廾
9C50	弃	弉	彝	彜	弋	弑	弖	弩	弭	弸	彁	彈	彌	彎	弯	彑
9C60	彖	彗	彙	彡	彭	彳	彷	徃	徂	彿	徊	很	徑	徇	從	徙
9C70	徘	徠	徨	徭	徼	忖	忻	忤	忸	忱	忝	悳	忿	怡	恠	
9C80	怙	怐	怩	怎	怱	怛	怕	怫	怦	怏	怺	恚	恁	恪	恷	恟
9C90	恊	恆	恍	恣	恃	恤	恂	恬	恫	恙	悁	悍	惧	悃	悚	悄
9CA0	悛	悖	悗	悒	悧	悋	惡	悸	惠	惓	悴	忰	悽	惆	悵	惘
9CB0	慍	愕	愆	惶	惷	愀	惴	惺	愃	愡	惻	惱	愍	愎	慇	愾
9CC0	愨	愧	慊	愿	愼	愬	愴	愽	慂	慄	慳	慷	慘	慙	慚	慫
9CD0	慴	慯	慥	慱	慟	慝	慓	慵	憙	憖	憇	憬	憔	憚	憊	憑
9CE0	憫	憮	懌	懊	應	懷	懈	懃	懆	憺	懋	罹	懍	懦	懣	懶
9CF0	懺	懴	懿	懽	懼	懾	戀	戈	戉	戍	戌	戔	戛			

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
9D40	戞	戡	截	戮	戰	戲	戳	扁	扎	扞	扣	扛	扠	扨	扼	抂
9D50	抉	找	抒	抓	抖	拔	抃	抔	拗	拑	抻	拏	拿	拆	擔	拈
9D60	拜	拌	拊	拂	拇	抛	拉	挌	拮	拱	挧	挂	挈	拯	拵	捐
9D70	挾	捍	搜	捏	掖	掎	掀	掫	捶	掣	掏	掉	掟	掵	捫	
9D80	捩	掾	揩	揀	揆	揣	揉	插	揶	揄	搖	搴	搆	搓	搦	搶
9D90	攝	搗	搨	搏	摧	摯	摶	摎	攪	撕	撓	撥	撩	撈	撼	據
9DA0	擒	擅	擇	撻	擘	擂	擱	擧	舉	擠	擡	抬	擣	擯	攬	擶
9DB0	擴	擲	擺	攀	擽	攘	攜	攅	攤	攣	攫	攴	攵	攷	收	攸
9DC0	畋	效	敖	敕	敍	敘	敞	敝	敲	數	斂	斃	變	斛	斟	斫
9DD0	斷	旃	旆	旁	旄	旌	旒	旛	旙	无	旡	旱	杲	昊	昃	旻
9DE0	杳	昵	昶	昴	昜	晏	晄	晉	晁	晞	晝	晤	晧	晨	晟	晢
9DF0	晰	暃	暈	暎	暉	暄	暘	暝	曁	暹	曉	暾	暼			

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
9E40	曄	暸	曖	曚	曠	昿	曦	曩	曰	曵	曷	朏	朖	朞	朦	朧
9E50	霸	朮	朿	朶	杁	朸	朷	杆	杞	杠	杙	杣	杤	枉	杰	枩
9E60	杼	杪	枌	枋	枦	枡	枅	枷	柯	枴	柬	枳	柩	枸	柤	柞
9E70	柝	柢	柮	枹	柎	柆	柧	檜	栞	框	栩	桀	桍	栲	桎	
9E80	梳	栫	桙	档	桷	桿	梟	梏	梭	梔	條	梛	梃	檮	梹	桴
9E90	梵	梠	梺	椏	梍	桾	椁	棊	椈	棘	椢	椦	棡	椌	棍	棔
9EA0	棧	棕	椶	椒	椄	棗	棣	椥	棹	棠	棯	椨	椪	椚	椣	椡
9EB0	棆	楹	楷	楜	楸	楫	楔	楾	楮	椹	楴	椽	楙	椰	楡	楞
9EC0	楝	榁	楪	榲	榮	槐	榿	槁	槓	榾	槎	寨	槊	槝	榻	槃
9ED0	榧	樮	榑	榠	榜	榕	榴	槞	槨	樂	樛	槿	權	槹	槲	槧
9EE0	樅	榱	樞	槭	樔	槫	樊	樒	櫁	樣	樓	橄	樌	橲	樶	橸
9EF0	橇	橢	橙	橦	橈	樸	樢	檐	檍	檠	檄	檢	檣			

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
9F40	檗	蘗	檻	櫃	櫂	檸	檳	檬	櫞	櫑	櫟	檪	櫚	櫪	櫻	欅
9F50	蘖	櫺	欒	欖	鬱	欟	欸	欷	盜	欹	飮	歇	歃	歉	歐	歙
9F60	歔	歛	歟	歡	歸	歹	歿	殀	殄	殃	殍	殘	殕	殞	殤	殪
9F70	殫	殯	殲	殱	殳	殷	殼	毆	毋	毓	毟	毬	毫	毳	毯	
9F80	麾	氈	氓	气	氛	氤	氣	汞	汕	汢	汪	沂	沍	沚	沁	沛
9F90	汾	汨	汳	沒	沐	泄	泱	泓	沽	泗	泅	泝	沮	沱	沾	沺
9FA0	泛	泯	泙	泪	洟	衍	洶	洫	洽	洸	洙	洵	洳	洒	洌	浣
9FB0	涓	浤	浚	浹	浙	涎	涕	濤	涅	淹	渕	渊	涵	淇	淦	涸
9FC0	淆	淬	淞	淌	淨	淒	淅	淺	淙	淤	淕	淪	淮	渭	湮	渮
9FD0	渙	湲	湟	渾	渣	湫	渫	湶	湍	渟	湃	渺	湎	渤	滿	渝
9FE0	游	溂	溪	溘	滉	溷	滓	溽	溯	滄	溲	滔	滕	溏	溥	滂
9FF0	溟	潁	漑	灌	滬	滸	滾	漿	滲	漱	滯	漲	滌			

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
E040	漾	漓	滷	澆	潺	潸	澁	澀	潯	潛	濳	潭	澂	潼	潘	澎
E050	澑	濂	潦	澳	澣	澡	澤	澹	濆	澪	濟	濕	濬	濔	濘	濱
E060	濮	濛	瀉	瀋	濺	瀑	瀁	瀏	濾	瀛	瀚	潴	瀝	瀘	瀟	瀰
E070	瀾	瀲	灑	灣	炙	炒	炯	烱	炬	炸	炳	炮	烟	烋	烝	
E080	烙	焉	烽	焜	焙	煥	煕	熈	煦	煢	煌	煖	煬	熏	燻	熄
E090	熕	熨	熬	燗	熹	熾	燒	燉	燔	燎	燠	燬	燧	燵	燼	燹
E0A0	燿	爍	爐	爛	爨	爭	爬	爰	爲	爻	爼	爿	牀	牆	牋	牘
E0B0	牴	牾	犂	犁	犇	犒	犖	犢	犧	犹	犲	狃	狆	狄	狎	狒
E0C0	狢	狠	狡	狹	狷	倏	猗	猊	猜	猖	猝	猴	猯	猩	猥	猾
E0D0	獎	獏	默	獗	獪	獨	獰	獸	獵	獻	獺	珈	玳	珎	玻	珀
E0E0	珥	珮	珞	璢	琅	瑯	琥	珸	琲	琺	瑕	琿	瑟	瑙	瑁	瑜
E0F0	瑩	瑰	瑣	瑪	瑶	瑾	璋	璞	璧	瓊	瓏	瓔	珱			

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
E140	瓠	瓣	瓧	瓩	瓮	瓲	瓰	瓱	瓸	瓷	甄	甃	甅	甌	甎	甍
E150	甕	甓	甞	甦	甬	甼	畄	畍	畊	畉	畛	畆	畚	畩	畤	畧
E160	畫	畭	畸	當	疆	疇	畴	疊	疉	疂	疔	疚	疝	疥	疣	痂
E170	疳	痃	疵	疽	疸	疼	疱	痍	痊	痒	痙	痣	痞	痾	痿	
E180	痼	瘁	痰	痺	痲	痳	瘋	瘍	瘉	瘟	瘧	瘠	瘡	瘢	瘤	瘴
E190	瘰	瘻	癇	癈	癆	癜	癘	癡	癢	癨	癩	癪	癧	癬	癰	癲
E1A0	癶	癸	發	皀	皃	皈	皋	皎	皖	皓	皙	皚	皰	皴	皸	皹
E1B0	皺	盂	盍	盖	盒	盞	盡	盥	盧	盪	蘯	盻	眈	眇	眄	眩
E1C0	眤	眞	眥	眦	眛	眷	眸	睇	睚	睨	睫	睛	睥	睿	睾	睹
E1D0	瞎	瞋	瞑	瞠	瞞	瞰	瞶	瞹	瞿	瞼	瞽	瞻	矇	矍	矗	矚
E1E0	矜	矣	矮	矼	砌	砒	礦	砠	礪	硅	碎	硴	碆	硼	碚	碌
E1F0	碣	碵	碪	碯	磑	磆	磋	磔	碾	碼	磅	磊	磬			

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
E240	磧	磚	磽	磴	礇	礒	礑	礙	礬	礫	祀	祠	祗	祟	祚	祕
E250	祓	祺	祿	禊	禝	禧	齋	禪	禮	禳	禹	禺	秉	秕	秧	秬
E260	秡	秣	稈	稍	稘	稙	稠	稟	禀	稱	稻	稾	稷	穃	穗	穉
E270	穡	穢	穩	龝	穰	穹	穽	窈	窗	窕	窘	窖	窩	竈	窰	
E280	窶	竅	竄	窿	邃	竇	竊	竍	竏	竕	竓	站	竚	竝	竡	竢
E290	竦	竭	竰	笂	笏	笊	笆	笳	笘	笙	笞	笵	笨	笶	筐	筺
E2A0	笄	筍	笋	筌	筅	筵	筥	筴	筧	筰	筱	筬	筮	箝	箘	箟
E2B0	箍	箜	箚	箋	箒	箏	筝	箙	篋	篁	篌	篏	箴	篆	篝	篩
E2C0	簑	簔	篦	篥	籠	簀	簇	簓	篳	篷	簗	簍	篶	簣	簧	簪
E2D0	簟	簷	簫	簽	籌	籃	籔	籏	籀	籐	籘	籟	籤	籖	籥	籬
E2E0	籵	粃	粐	粤	粭	粢	粫	粡	粨	粳	粲	粱	粮	粹	粽	糀
E2F0	糅	糂	糘	糒	糜	糢	鬻	糯	糲	糴	糶	糺	紆			

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
E340	紂	紜	紕	紊	絅	絋	紮	紲	紿	紵	絆	絳	絖	絎	絲	絨
E350	絮	絏	絣	經	綉	絛	綏	絽	綛	綺	綮	綣	綵	緇	綽	綫
E360	總	綢	綯	緜	綸	綟	綰	緘	緝	緤	緞	緻	緲	緡	縅	縊
E370	縣	縡	縒	縱	縟	縉	縋	縢	繆	繦	縻	縵	縹	繃	縷	
E380	縲	縺	繧	繝	繖	繞	繙	繚	繹	繪	繩	繼	繻	纃	緕	繽
E390	辮	繿	纈	纉	續	纒	纐	纓	纔	纖	纎	纛	纜	缸	缺	罅
E3A0	罌	罍	罎	罐	网	罕	罔	罘	罟	罠	罨	罩	罧	罸	羂	羆
E3B0	羃	羈	羇	羌	羔	羞	羝	羚	羣	羯	羲	羹	羮	羶	羸	譱
E3C0	翅	翆	翊	翕	翔	翡	翦	翩	翳	翹	飜	耆	耄	耋	耒	耘
E3D0	耙	耜	耡	耨	耿	耻	聊	聆	聒	聘	聚	聟	聢	聨	聳	聲
E3E0	聰	聶	聹	聽	聿	肄	肆	肅	肛	肓	肚	肭	冐	肬	胛	胥
E3F0	胙	胝	胄	胚	胖	脉	胯	胱	脛	脩	脣	脯	腋			

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
E440	隋	腆	脾	腓	腑	胼	腱	腮	腥	腦	腴	膃	膈	膊	膀	膂
E450	膠	膕	膤	膣	腟	膓	膩	膰	膵	膾	膸	膽	臀	臂	膺	臉
E460	臍	臑	臙	臘	臈	臚	臟	臠	臧	臺	臻	臾	舁	舂	舅	與
E470	舊	舍	舐	舖	舩	舫	舸	舳	艀	艙	艘	艝	艚	艟	艤	
E480	艢	艨	艪	艫	舮	艱	艷	艸	艾	芍	芒	芫	芟	芻	芬	苡
E490	苣	苟	苒	苴	苳	苺	莓	范	苻	苹	苞	茆	苜	茉	苙	茵
E4A0	茴	茖	茲	茱	荀	茹	荐	荅	茯	茫	茗	茘	莅	莚	莪	莟
E4B0	莢	莖	茣	莎	莇	莊	荼	莵	荳	荵	莠	莉	莨	菴	萓	菫
E4C0	菎	菽	萃	菘	萋	菁	菷	萇	菠	菲	萍	萢	萠	莽	萸	蔆
E4D0	菻	葭	萪	萼	蕚	蒄	葷	葫	蒭	葮	蒂	葩	葆	萬	葯	葹
E4E0	萵	蓊	葢	蒹	蒿	蒟	蓙	蓍	蒻	蓚	蓐	蓁	蓆	蓖	蒡	蔡
E4F0	蓿	蓴	蔗	蔘	蔬	蔟	蔕	蔔	蓼	蕀	蕣	蕘	蕈			

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
E540	蕁	蘂	蕋	蕕	薀	薤	薈	薑	薊	薨	蕭	薔	薛	藪	薇	薜
E550	蕷	蕾	薐	藉	薺	藏	薹	藐	藕	藝	藥	藜	藹	蘊	蘓	蘋
E560	藾	藺	蘆	蘢	蘚	蘰	蘿	虍	乕	虔	號	虧	虱	蚓	蚣	蚩
E570	蚪	蚋	蚌	蚶	蚯	蛄	蛆	蚰	蛉	蠣	蚫	蛔	蛞	蛩	蛬	
E580	蛟	蛛	蛯	蜒	蜆	蜈	蜀	蜃	蛻	蜑	蜉	蜍	蛹	蜊	蜴	蜿
E590	蜷	蜻	蜥	蜩	蜚	蝠	蝟	蝸	蝌	蝎	蝴	蝗	蝨	蝮	蝙	蝓
E5A0	蝣	蝪	蠅	螢	螟	螂	螯	蟋	螽	蟀	蟐	雖	螫	蟄	螳	蟇
E5B0	蟆	螻	蟯	蟲	蟠	蠏	蠍	蟾	蟶	蟷	蠎	蟒	蠑	蠖	蠕	蠢
E5C0	蠡	蠱	蠶	蠹	蠧	蠻	衄	衂	衒	衙	衞	衢	衫	袁	衾	袞
E5D0	衵	衽	袵	衲	袂	袗	袒	袮	袙	袢	袍	袤	袰	袿	袱	裃
E5E0	裄	裔	裘	裙	裝	裹	褂	裼	裴	裨	裲	褄	褌	褊	褓	襃
E5F0	褞	褥	褪	褫	襁	襄	褻	褶	褸	襌	褝	襠	襞			

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
E640	襦	襤	襭	襪	襯	襴	襷	襾	覃	覈	覊	覓	覘	覡	覩	覦
E650	覬	覯	覲	覺	覽	覿	觀	觚	觜	觝	觧	觴	觸	訃	訖	訐
E660	訌	訛	訝	訥	訶	詁	詛	詒	詆	詈	詼	詭	詬	詢	誅	誂
E670	誄	誨	誡	誑	誥	誦	誚	誣	諄	諍	諂	諚	諫	諳	諧	
E680	諤	諱	謔	諠	諢	諷	諞	諛	謌	謇	謚	諡	謖	謐	謗	謠
E690	謳	鞫	謦	謫	謾	謨	譁	譌	譏	譎	證	譖	譛	譚	譫	譟
E6A0	譬	譯	譴	譽	讀	讌	讎	讒	讓	讖	讙	讚	谺	豁	谿	豈
E6B0	豌	豎	豐	豕	豢	豬	豸	豺	貂	貉	貅	貊	貍	貎	貔	豼
E6C0	貘	戝	貭	貪	貽	貲	貳	貮	貶	賈	賁	賤	賣	賚	賽	賺
E6D0	賻	贄	贅	贊	贇	贏	贍	贐	齎	贓	賍	贔	贖	赧	赭	赱
E6E0	赳	趁	趙	跂	趾	趺	跏	跚	跖	跌	跛	跋	跪	跫	跟	跣
E6F0	跼	踈	踉	跿	踝	踞	踐	踟	蹂	踵	踰	踴	蹊			

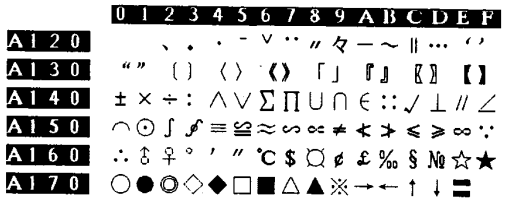
	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
E740	蹇	蹉	蹌	蹐	蹈	蹙	蹤	蹠	踪	蹣	蹕	蹶	蹲	蹼	躁	躇
E750	躅	躄	躋	躊	躓	躑	躔	躙	躪	躡	躬	躰	軆	躱	躾	軅
E760	軈	軋	軛	軣	軼	軻	軫	軾	輊	輅	輕	輒	輙	輓	輜	輟
E770	輛	輌	輦	輳	輻	輹	轅	轂	輾	轌	轉	轆	轎	轗	轜	
E780	轢	轣	轤	辜	辟	辣	辭	辯	辷	迚	迥	迢	迪	迯	邇	迴
E790	逅	迹	迺	逑	逕	逡	逍	逞	逖	逋	逧	逶	逵	逹	迸	遏
E7A0	遐	遑	遒	逎	遉	逾	遖	遘	遞	遨	遯	遶	隨	遲	邂	遽
E7B0	邁	邀	邊	邉	邏	邨	邯	邱	邵	郢	郤	扈	郛	鄂	鄒	鄙
E7C0	鄲	鄰	酊	酖	酘	酣	酥	酩	酳	酲	醋	醉	醂	醢	醫	醯
E7D0	醪	醵	醴	醺	釀	釁	釉	釋	釐	釖	釟	釡	釛	釼	釵	釶
E7E0	鈞	釿	鈔	鈬	鈕	鈑	鉞	鉗	鉅	鉉	鉤	鉈	銕	鈿	鉋	鉐
E7F0	銜	銖	銓	銛	鉚	鋏	銹	銷	鋩	錏	鋺	鍄	錮			

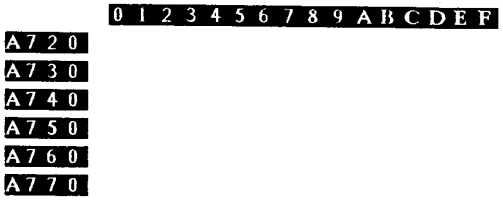
	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
E840	錙	錢	錚	錣	錺	錵	錻	鍜	鍠	鍼	鍮	鍖	鎰	鎬	鎭	鎔
E850	鎹	鏖	鏗	鏨	鏥	鏘	鏃	鏝	鏐	鏈	鏤	鐚	鐔	鐓	鐃	鐇
E860	鐐	鐶	鐫	鐵	鐡	鐺	鑁	鑒	鑄	鑛	鑠	鑢	鑞	鑪	鈩	鑰
E870	鑵	鑷	鑽	鑚	鑼	鑾	钁	鑿	閂	閇	閊	閔	閖	閘	閙	
E880	閠	閨	閧	閭	閼	閻	閹	閾	闊	濶	闃	闍	闌	闕	闔	闖
E890	關	闡	闥	闢	阡	阨	阮	阯	陂	陌	陏	陋	陷	陜	陞	陝
E8A0	陟	陦	陲	陬	隍	隘	隕	隗	險	隧	隱	隲	隰	隴	隶	隸
E8B0	隹	雎	雋	雉	雍	襍	雜	霍	雕	雹	霄	霆	霈	霓	霎	霑
E8C0	霏	霖	霙	霤	霪	霰	霹	霽	霾	靄	靆	靈	靂	靉	靜	靠
E8D0	靤	靦	靨	勒	靫	靱	靹	鞅	靼	鞁	靺	鞆	鞋	鞏	鞐	鞜
E8E0	鞨	鞦	鞣	鞳	鞴	韃	韆	韈	韋	韜	韭	齏	韲	竟	韶	韵
E8F0	頏	頌	頸	頤	頡	頷	頽	顆	顏	顋	顫	顯	顰			

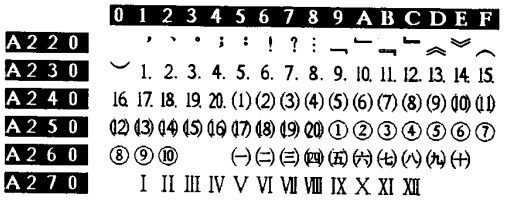
	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
E940	顱	顴	顳	颪	颯	颱	颶	飄	飃	飆	飩	飫	餃	餉	餒	餔
E950	餘	餡	餝	餞	餤	餠	餬	餮	餽	餾	饂	饉	饅	饐	饋	饑
E960	饒	饌	饕	馗	馘	馥	馭	馮	馼	駟	駛	駝	駘	駑	駭	駮
E970	駱	駲	駻	駸	騁	騏	騅	駢	騙	騫	騷	驅	驂	驀	驃	
E980	騾	驕	驍	驛	驗	驟	驢	驥	驤	驩	驫	驪	骭	骰	骼	髀
E990	髏	髑	髓	體	髞	髟	髢	髣	髦	髯	髫	髮	髴	髱	髷	髻
E9A0	鬆	鬘	鬚	鬟	鬢	鬣	鬥	鬧	鬨	鬩	鬪	鬮	鬯	鬲	魄	魃
E9B0	魏	魍	魎	魑	魘	魴	鮓	鮃	鮑	鮖	鮗	鮟	鮠	鮨	鮴	鯀
E9C0	鯊	鮹	鯆	鯏	鯑	鯒	鯣	鯢	鯤	鯔	鯡	鰺	鯲	鯱	鯰	鰕
E9D0	鰔	鰉	鰓	鰌	鰆	鰈	鰒	鰊	鰄	鰮	鰛	鰥	鰤	鰡	鰰	鱇
E9E0	鰲	鱆	鰾	鱚	鱠	鱧	鱶	鱸	鳧	鳬	鳰	鴉	鴈	鳫	鴃	鴆
E9F0	鴪	鴦	鶯	鴣	鴟	鵄	鴕	鴒	鵁	鴿	鴾	鵆	鵈			

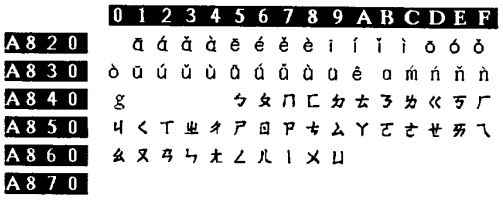
	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
EA40	鵝	鵞	鵤	鵑	鵐	鵙	鵲	鶉	鶇	鶫	鵯	鵺	鶚	鶤	鶩	鶲
EA50	鷄	鷁	鶻	鶸	鶺	鷆	鷏	鷂	鷙	鷓	鷸	鷦	鷭	鷯	鷽	鸚
EA60	鸛	鸞	鹵	鹹	鹽	麁	麈	麋	麌	麒	麕	麑	麝	麥	麩	麸
EA70	麪	麭	靡	黌	黎	黏	黐	黔	黜	點	黝	黠	黥	黨	黯	
EA80	黴	黶	黷	黹	黻	黼	黽	鼇	鼈	皷	鼕	鼡	鼬	鼾	齊	齒
EA90	齔	齣	齟	齠	齡	齦	齧	齬	齪	齷	齲	齶	龕	龜	龠	堯
EAA0	槇	遙	瑤													
EAB0																
EAC0																
EAD0																
EAE0																
EAF0																

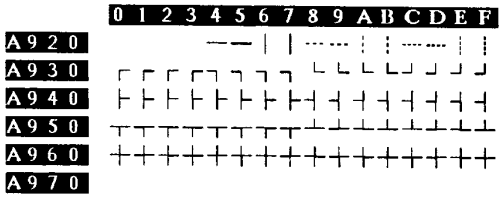
5-3 Chinese Language Codes (Conforming to GB 8312)

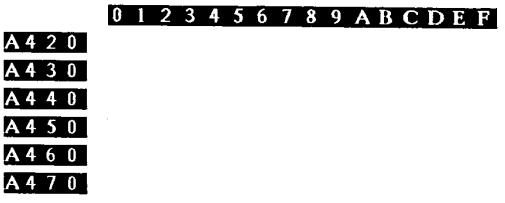


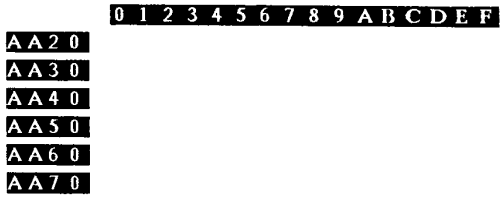


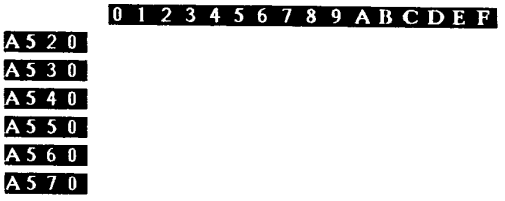


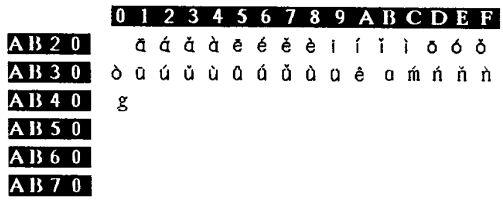


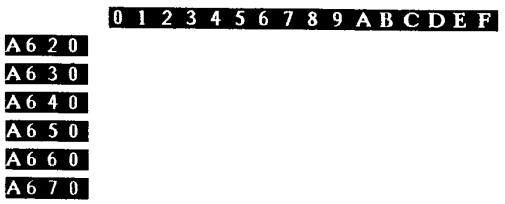


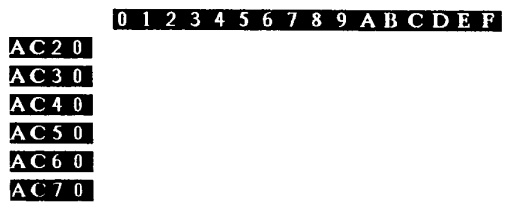












	0 1 2 3 4 5 6 7 8 9 A B C D E F
AD20	
AD30	
AD40	
AD50	
AD60	
AD70	

	0 1 2 3 4 5 6 7 8 9 A B C D E F
B320	场尝常长偿肠厂敞畅唱倡超抄钞朝
B330	嘲潮巢吵炒车扯撤掣彻澈郴臣辰尘晨
B340	忱沉陈趁衬撑称城橙成呈乘程惩澄诚
B350	承逞骋秤吃痴持匙池迟弛驰耻齿侈尺
B360	赤翅斥炽充冲虫崇宠抽酬畴踌稠愁筹
B370	仇绸瞅丑臭初出橱厨躇锄雏滁除楚

	0 1 2 3 4 5 6 7 8 9 A B C D E F
AE20	
AE30	
AE40	
AE50	
AE60	
AE70	

	0 1 2 3 4 5 6 7 8 9 A B C D E F
B420	础储矗搐触处揣川穿椽传船喘串疮
B430	窗幢床闯创吹炊捶锤垂春椿醇唇淳纯
B440	蠢戳绰疵茨磁雌辞慈瓷词此刺赐次聪
B450	葱囱匆从丛凑粗醋簇促蹿篡窜摧崔催
B460	脆瘁粹淬翠村存寸磋撮搓措挫错搭达
B470	答瘩打大呆歹傣戴带殆代贷袋待逮

	0 1 2 3 4 5 6 7 8 9 A B C D E F
AF20	
AF30	
AF40	
AF50	
AF60	
AF70	

	0 1 2 3 4 5 6 7 8 9 A B C D E F
B520	怠耽担丹单郸掸胆旦氮但惮淡诞弹
B530	蛋当挡党荡档刀捣蹈倒岛祷导到稻悼
B540	道盗德得的蹬灯登等瞪凳邓堤低滴迪
B550	敌笛狄涤翟嫡抵底地蒂第帝弟递缔颠
B560	掂滇碘点典靛垫电佃甸店惦奠淀殿碉
B570	叼雕凋刁掉吊钓调跌爹碟蝶迭谍叠

	0 1 2 3 4 5 6 7 8 9 A B C D E F
B020	啊阿埃挨哎唉哀皑癌蔼矮艾碍爱隘
B030	鞍氨安俺按暗岸胺案肮昂盎凹敖熬翱
B040	袄傲奥懊澳芭捌扒叭吧笆八疤巴拔跋
B050	靶把耙坝霸罢爸白柏百摆佰败拜稗斑
B060	班搬扳般颁板版扮拌伴瓣半办绊邦帮
B070	梆榜膀绑棒磅蚌镑傍谤苞胞包褒剥

	0 1 2 3 4 5 6 7 8 9 A B C D E F
B620	丁盯叮钉顶鼎锭定订丢东冬董懂动
B630	栋侗恫冻洞兜抖斗陡豆逗痘都督毒犊
B640	独读堵睹赌杜镀肚度渡妒端短锻段断
B650	缎堆兑队对墩吨蹲敦顿囤钝盾遁掇哆
B660	多夺垛躲朵跺舵剁惰堕蛾峨鹅俄额讹
B670	娥恶厄扼遏鄂饿恩而儿耳尔饵洱二

	0 1 2 3 4 5 6 7 8 9 A B C D E F
B120	薄雹保堡饱宝抱报暴豹鲍爆杯碑悲
B130	卑北辈背贝钡倍狈备惫焙被奔苯本笨
B140	崩绷甭泵蹦进逼鼻比鄙笔彼碧蓖蔽毕
B150	毙毖币庇痹闭敝弊必辟壁臂避陛鞭边
B160	编贬扁便变卞辨辩辫遍标彪膘表鳖憋
B170	别瘪彬斌濒滨宾摈兵冰柄丙秉饼炳

	0 1 2 3 4 5 6 7 8 9 A B C D E F
B720	贰发罚筏伐乏阀法珐藩帆番翻樊矾
B730	钒繁凡烦反返范贩犯饭泛坊芳方肪房
B740	防妨仿访纺放菲非啡飞肥匪诽吠肺废
B750	沸费芬酚吩氛分纷坟焚汾粉奋份忿愤
B760	粪丰封枫蜂峰锋风疯烽逢冯缝讽奉凤
B770	佛否夫敷肤孵扶拂辐幅氟符伏俘服

	0 1 2 3 4 5 6 7 8 9 A B C D E F
B220	病并玻菠播拨钵波博勃搏铂箔伯帛
B230	舶脖膊渤泊驳捕卜哺补埠不布步簿部
B240	怖擦猜裁材才财睬踩采彩菜蔡餐参蚕
B250	残惭惨灿苍舱仓沧藏操糙槽曹草厕策
B260	侧册测层蹭插叉茬茶查碴搽察岔差诧
B270	拆柴豺搀掺蝉馋谗缠铲产阐颤昌猖

	0 1 2 3 4 5 6 7 8 9 A B C D E F
B820	浮涪福袱弗甫抚辅俯釜斧脯腑府腐
B830	赴副覆赋复傅付阜父腹负富讣附妇缚
B840	咐噶嘎该改概钙盖溉干甘杆柑竿肝赶
B850	感秆敢赣冈刚钢缸肛纲岗港杠篙皋高
B860	膏羔糕搞镐稿告哥歌搁戈鸽胳疙割革
B870	葛格蛤阁隔铬个各给根跟耕更庚羹

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
B920	埂	耿	梗	工	攻	功	恭	龚	供	躬	公	宫	弓	巩	汞	
B930	拱	贡	共	钩	勾	沟	苟	狗	垢	构	购	够	辜	菇	咕	箍
B940	估	沽	孤	姑	鼓	古	蛊	骨	谷	股	故	顾	固	雇	刮	瓜
B950	剐	寡	挂	褂	乖	拐	怪	棺	关	官	冠	观	管	馆	罐	惯
B960	灌	贯	光	广	逛	瑰	规	圭	硅	归	龟	闺	轨	鬼	诡	癸
B970	桂	柜	跪	贵	刽	辊	滚	棍	锅	郭	国	果	裹	过	哈	

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
BF20	俊	竣	浚	郡	骏	喀	咖	卡	咯	开	揩	楷	凯	慨	刊	
BF30	堪	勘	坎	砍	看	康	慷	糠	扛	抗	亢	炕	考	拷	烤	靠
BF40	坷	苛	柯	棵	磕	颗	科	壳	咳	可	渴	克	刻	客	课	肯
BF50	啃	垦	恳	坑	吭	空	恐	孔	控	抠	口	扣	寇	枯	哭	窟
BF60	苦	酷	库	裤	夸	垮	挎	跨	胯	块	筷	侩	快	宽	款	匡
BF70	筐	狂	框	矿	眶	旷	况	亏	盔	岿	窥	葵	奎	魁	傀	

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
BA20	骸	孩	海	氦	亥	害	骇	酣	憨	邯	韩	含	涵	寒	函	
BA30	喊	罕	翰	撼	捍	旱	憾	悍	焊	汗	汉	夯	杭	航	壕	嚎
BA40	豪	毫	郝	好	耗	号	浩	呵	喝	荷	菏	核	禾	和	何	合
BA50	盒	貉	阂	河	涸	赫	褐	鹤	贺	嘿	黑	痕	很	狠	恨	哼
BA60	亨	横	衡	恒	轰	哄	烘	虹	鸿	洪	宏	弘	红	喉	侯	猴
BA70	吼	厚	候	后	呼	乎	忽	瑚	壶	葫	胡	蝴	狐	糊	湖	

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
C020	馈	愧	溃	坤	昆	捆	困	括	扩	廓	阔	垃	拉	喇	蜡	
C030	腊	辣	啦	莱	来	赖	蓝	婪	栏	拦	篮	阑	兰	澜	谰	揽
C040	览	懒	缆	烂	滥	琅	榔	狼	廊	郎	朗	浪	捞	劳	牢	老
C050	佬	姥	酪	烙	涝	勒	乐	雷	镭	蕾	磊	累	儡	垒	擂	肋
C060	类	泪	棱	楞	冷	厘	梨	犁	黎	篱	狸	离	漓	理	李	里
C070	鲤	礼	莉	荔	吏	栗	丽	厉	励	砾	历	利	傈	例	俐	

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
BB20	弧	虎	唬	护	互	沪	户	花	哗	华	猾	滑	画	划	化	
BB30	话	槐	徊	怀	淮	坏	欢	环	桓	还	缓	换	患	唤	痪	豢
BB40	焕	涣	宦	幻	荒	慌	黄	磺	蝗	簧	皇	凰	惶	煌	晃	幌
BB50	恍	谎	灰	挥	辉	徽	恢	蛔	回	毁	悔	慧	卉	惠	晦	贿
BB60	秽	会	烩	汇	讳	诲	绘	荤	昏	婚	魂	浑	混	豁	活	伙
BB70	火	获	或	惑	霍	货	祸	击	圾	基	机	畸	稽	积	箕	

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
C120	痢	立	粒	沥	隶	力	璃	哩	俩	联	莲	连	镰	廉	怜	
C130	涟	帘	敛	脸	链	恋	炼	练	粮	凉	梁	粱	良	两	辆	量
C140	晾	亮	谅	撩	聊	僚	疗	燎	寥	辽	潦	了	撂	镣	廖	料
C150	列	裂	烈	劣	猎	琳	林	磷	霖	临	邻	鳞	淋	凛	赁	吝
C160	拎	玲	菱	零	龄	铃	伶	羚	凌	灵	陵	岭	领	另	令	溜
C170	琉	榴	硫	馏	留	刘	瘤	流	柳	六	龙	聋	咙	笼	窿	

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
BC20	肌	饥	迹	激	讥	鸡	姬	绩	缉	吉	极	棘	辑	籍	集	
BC30	及	急	疾	汲	即	嫉	级	挤	几	脊	己	蓟	技	冀	季	伎
BC40	祭	剂	悸	济	寄	寂	计	记	既	忌	际	妓	继	纪	嘉	枷
BC50	夹	佳	家	加	荚	颊	贾	甲	钾	假	稼	价	架	驾	嫁	歼
BC60	监	坚	尖	笺	间	煎	兼	肩	艰	奸	缄	茧	检	柬	碱	硷
BC70	拣	捡	简	俭	剪	减	荐	槛	鉴	践	贱	见	键	箭	件	

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
C220	隆	垄	拢	陇	楼	娄	搂	篓	漏	陋	芦	卢	颅	庐	炉	
C230	掳	卤	虏	鲁	麓	碌	露	路	赂	鹿	潞	禄	录	陆	戮	驴
C240	吕	铝	侣	旅	履	屡	缕	虑	氯	律	率	滤	绿	峦	挛	孪
C250	滦	卵	乱	掠	略	抡	轮	伦	仑	沦	纶	论	萝	螺	罗	逻
C260	锣	箩	骡	裸	落	洛	骆	络	妈	麻	玛	码	蚂	马	骂	嘛
C270	吗	埋	买	麦	卖	迈	脉	瞒	馒	蛮	满	蔓	曼	慢	漫	

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
BD20	健	舰	剑	饯	渐	溅	涧	建	僵	姜	将	浆	江	疆	蒋	
BD30	桨	奖	讲	匠	酱	降	蕉	椒	礁	焦	胶	交	郊	浇	骄	娇
BD40	嚼	搅	铰	矫	侥	脚	狡	角	饺	缴	绞	剿	教	酵	轿	较
BD50	叫	窖	揭	接	皆	秸	街	阶	截	劫	节	桔	杰	捷	睫	竭
BD60	洁	结	解	姐	戒	藉	芥	界	借	介	疥	诫	届	巾	筋	斤
BD70	金	今	津	襟	紧	锦	仅	谨	进	靳	晋	禁	近	烬	浸	

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
C320	谩	芒	茫	盲	氓	忙	莽	猫	茅	锚	毛	矛	铆	卯	茂	
C330	冒	帽	貌	贸	么	玫	枚	梅	酶	霉	煤	没	眉	媒	镁	每
C340	美	昧	寐	妹	媚	门	闷	们	萌	蒙	檬	盟	锰	猛	梦	孟
C350	眯	醚	靡	糜	迷	谜	弥	米	秘	觅	泌	蜜	密	幂	棉	眠
C360	绵	冕	免	勉	娩	缅	面	苗	描	瞄	藐	秒	渺	庙	妙	蔑
C370	灭	民	抿	皿	敏	悯	闽	明	螟	鸣	铭	名	命	谬	摸	

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
BE20	尽	劲	荆	兢	茎	睛	晶	鲸	京	惊	精	粳	经	井	警	
BE30	景	颈	静	境	敬	镜	径	痉	靖	竟	竞	净	炯	窘	揪	究
BE40	纠	玖	韭	久	灸	九	酒	厩	救	旧	臼	舅	咎	就	疚	鞠
BE50	拘	狙	疽	居	驹	菊	局	咀	矩	举	沮	聚	拒	据	巨	具
BE60	距	踞	锯	俱	句	惧	炬	剧	捐	鹃	娟	倦	眷	卷	绢	撅
BE70	攫	抉	掘	倔	爵	觉	决	诀	绝	均	菌	钧	军	君	峻	

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
C420	摹	蘑	模	膜	磨	摩	魔	抹	末	莫	墨	默	沫	漠	寞	
C430	陌	谋	牟	某	拇	牡	亩	姆	母	墓	暮	幕	募	慕	木	目
C440	睦	牧	穆	拿	哪	呐	钠	那	娜	纳	氖	乃	奶	耐	奈	南
C450	男	难	囊	挠	脑	恼	闹	淖	呢	馁	内	嫩	能	妮	霓	倪
C460	泥	尼	拟	你	匿	腻	逆	溺	蔫	拈	年	碾	撵	捻	念	娘
C470	酿	鸟	尿	捏	聂	孽	啮	镊	镍	涅	您	柠	狞	凝	宁	

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
C520	拧	泞	牛	扭	钮	纽	脓	浓	农	弄	奴	努	怒	女	暖	
C530	虐	疟	挪	懦	糯	诺	哦	欧	鸥	殴	藕	呕	偶	沤	啪	趴
C540	爬	帕	怕	琶	拍	排	牌	徘	湃	派	攀	潘	盘	磐	盼	畔
C550	判	叛	乓	庞	旁	耪	胖	抛	咆	刨	炮	袍	跑	泡	呸	胚
C560	培	裴	赔	陪	配	佩	沛	喷	盆	砰	抨	烹	澎	彭	蓬	棚
C570	硼	篷	膨	朋	鹏	捧	碰	坯	砒	霹	批	披	劈	琵	毗	

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
CB20	恕	刷	要	摔	衰	甩	帅	栓	拴	霜	双	爽	谁	水	睡	
CB30	税	吮	瞬	顺	舜	说	硕	朔	烁	斯	撕	嘶	思	私	司	丝
CB40	死	肆	寺	嗣	四	伺	似	饲	巳	松	耸	怂	颂	送	宋	讼
CB50	诵	搜	艘	擞	嗽	苏	酥	俗	素	速	粟	僳	塑	溯	宿	诉
CB60	肃	酸	蒜	算	虽	隋	随	绥	髓	碎	岁	穗	遂	隧	祟	孙
CB70	损	笋	蓑	梭	唆	缩	琐	索	锁	所	塌	他	它	她	塔	

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
C620	啤	脾	疲	皮	匹	痞	僻	屁	譬	篇	偏	片	骗	飘	漂	
C630	瓢	票	撇	瞥	拼	频	贫	品	聘	乒	坪	苹	萍	平	凭	瓶
C640	评	屏	坡	泼	颇	婆	破	魄	迫	粕	剖	扑	铺	仆	莆	葡
C650	菩	蒲	埔	朴	圃	普	浦	谱	曝	瀑	期	欺	栖	戚	妻	七
C660	凄	漆	柒	沏	其	棋	奇	歧	畦	崎	脐	齐	旗	祈	祁	骑
C670	起	岂	乞	企	启	契	砌	器	气	迄	弃	汽	泣	讫	掐	

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
CC20	獭	挞	蹋	踏	胎	苔	抬	台	泰	酞	太	态	汰	坍	摊	
CC30	贪	瘫	滩	坛	檀	痰	潭	谭	谈	坦	毯	袒	碳	探	叹	炭
CC40	汤	塘	搪	堂	棠	膛	唐	糖	倘	躺	淌	趟	烫	掏	涛	滔
CC50	绦	萄	桃	逃	淘	陶	讨	套	特	藤	腾	疼	誊	梯	剔	踢
CC60	锑	提	题	蹄	啼	体	替	嚏	惕	涕	剃	屉	天	添	填	田
CC70	甜	恬	舔	腆	挑	条	迢	眺	跳	贴	铁	帖	厅	听	烃	

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
C720	恰	洽	牵	扦	钎	铅	千	迁	签	仟	谦	乾	黔	钱	钳	
C730	前	潜	遣	浅	谴	堑	嵌	欠	歉	枪	呛	腔	羌	墙	蔷	强
C740	抢	橇	锹	敲	悄	桥	瞧	乔	侨	巧	鞘	撬	翘	峭	俏	窍
C750	切	茄	且	怯	窃	钦	侵	亲	秦	琴	勤	芹	擒	禽	寝	沁
C760	青	轻	氢	倾	卿	清	擎	晴	氰	情	顷	请	庆	琼	穷	秋
C770	丘	邱	球	求	囚	酋	泅	趋	区	蛆	曲	躯	屈	驱	渠	

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
CD20	汀	廷	停	亭	庭	挺	艇	通	桐	酮	瞳	同	铜	彤	童	
CD30	桶	捅	筒	统	痛	偷	投	头	透	凸	秃	突	图	徒	途	涂
CD40	屠	土	吐	兔	湍	团	推	颓	腿	蜕	褪	退	吞	屯	臀	拖
CD50	托	脱	鸵	陀	驮	驼	椭	妥	拓	唾	挖	哇	蛙	洼	娃	瓦
CD60	袜	歪	外	豌	弯	湾	玩	顽	丸	烷	完	碗	挽	晚	皖	惋
CD70	宛	婉	万	腕	汪	王	亡	枉	网	往	旺	望	忘	妄	威	

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
C820	取	娶	龋	趣	去	圈	颧	权	醛	泉	全	痊	拳	犬	券	
C830	劝	缺	炔	瘸	却	鹊	榷	确	雀	裙	群	然	燃	冉	染	瓤
C840	壤	攘	嚷	让	饶	扰	绕	惹	热	壬	仁	人	忍	韧	任	认
C850	刃	妊	纫	扔	仍	日	戎	茸	蓉	荣	融	熔	溶	容	绒	冗
C860	揉	柔	肉	茹	蠕	儒	孺	如	辱	乳	汝	入	褥	软	阮	蕊
C870	瑞	锐	闰	润	若	弱	撒	洒	萨	腮	鳃	塞	赛	三	叁	

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
CE20	巍	微	危	韦	违	桅	围	唯	惟	为	潍	维	苇	萎	委	
CE30	伟	伪	尾	纬	未	蔚	味	畏	胃	喂	魏	位	渭	谓	尉	慰
CE40	卫	瘟	温	蚊	文	闻	纹	吻	稳	紊	问	嗡	翁	瓮	挝	蜗
CE50	涡	窝	我	斡	卧	握	沃	巫	呜	钨	乌	污	诬	屋	无	芜
CE60	梧	吾	吴	毋	武	五	捂	午	舞	伍	侮	坞	戊	雾	晤	物
CE70	勿	务	悟	误	昔	熙	析	西	硒	矽	晰	嘻	吸	锡	牺	

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
C920	伞	散	桑	嗓	丧	搔	骚	扫	嫂	瑟	色	涩	森	僧	莎	
C930	砂	杀	刹	沙	纱	傻	啥	煞	筛	晒	珊	苫	杉	山	删	煽
C940	衫	闪	陕	擅	赡	膳	善	汕	扇	缮	墒	伤	商	赏	晌	上
C950	尚	裳	梢	捎	稍	烧	芍	勺	韶	少	哨	邵	绍	奢	赊	蛇
C960	舌	舍	赦	摄	射	慑	涉	社	设	砷	申	呻	伸	身	深	娠
C970	绅	神	沈	审	婶	甚	肾	慎	渗	声	生	甥	牲	升	绳	

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
CF20	稀	息	希	悉	膝	夕	惜	熄	烯	溪	汐	犀	檄	袭	席	
CF30	习	媳	喜	铣	洗	系	隙	戏	细	瞎	虾	匣	霞	辖	暇	峡
CF40	侠	狭	下	厦	夏	吓	掀	锨	先	仙	鲜	纤	咸	贤	衔	舷
CF50	闲	涎	弦	嫌	显	险	现	献	县	腺	馅	羡	宪	陷	限	线
CF60	相	厢	镶	香	箱	襄	湘	乡	翔	祥	详	想	响	享	项	巷
CF70	橡	像	向	象	萧	硝	霄	削	哮	嚣	销	消	宵	淆	晓	

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
CA20	省	盛	剩	胜	圣	师	失	狮	施	湿	诗	尸	虱	十	石	
CA30	拾	时	什	食	蚀	实	识	史	矢	使	屎	驶	始	式	示	士
CA40	世	柿	事	拭	誓	逝	势	是	嗜	噬	适	仕	侍	释	饰	氏
CA50	市	恃	室	视	试	收	手	首	守	寿	授	售	受	瘦	兽	蔬
CA60	枢	梳	殊	抒	输	叔	舒	淑	疏	书	赎	孰	熟	薯	暑	曙
CA70	署	蜀	黍	鼠	属	术	述	树	束	戍	竖	墅	庶	数	漱	

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
D020	小	孝	校	肖	啸	笑	效	楔	些	歇	蝎	鞋	协	挟	携	
D030	邪	斜	胁	谐	写	械	卸	蟹	懈	泄	泻	谢	屑	薪	芯	锌
D040	欣	辛	新	忻	心	信	衅	星	腥	猩	惺	兴	刑	型	形	邢
D050	行	醒	幸	杏	性	姓	兄	凶	胸	匈	汹	雄	熊	休	修	羞
D060	朽	嗅	锈	秀	袖	绣	墟	戌	需	虚	嘘	须	徐	许	蓄	酗
D070	叙	旭	序	畜	恤	絮	婿	绪	续	轩	喧	宣	悬	旋	玄	

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
D120		选	癣	眩	绚	靴	薛	学	穴	雪	血	勋	熏	循	旬	询
D130	寻	驯	巡	殉	汛	训	讯	逊	迅	压	押	鸦	鸭	呀	丫	芽
D140	牙	蚜	崖	衙	涯	雅	哑	亚	讶	焉	咽	阉	烟	淹	盐	严
D150	研	蜒	岩	延	言	颜	阎	炎	沿	奄	掩	眼	衍	演	艳	堰
D160	燕	厌	砚	雁	唁	彦	焰	宴	谚	验	殃	央	鸯	秧	杨	扬
D170	佯	疡	羊	洋	阳	氧	仰	痒	养	样	漾	邀	腰	妖	瑶	

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
D220		摇	尧	遥	窑	谣	姚	咬	舀	药	要	耀	椰	噎	耶	爷
D230	野	冶	也	页	掖	业	叶	曳	腋	夜	液	一	壹	医	揖	铱
D240	依	伊	衣	颐	夷	遗	移	仪	胰	疑	沂	宜	姨	彝	椅	蚁
D250	倚	已	乙	矣	以	艺	抑	易	邑	屹	亿	役	臆	逸	肄	疫
D260	亦	裔	意	毅	忆	义	益	溢	诣	议	谊	译	异	翼	翌	绎
D270	茵	荫	因	殷	音	阴	姻	吟	银	淫	寅	饮	尹	引	隐	

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
D320		印	英	樱	婴	鹰	应	缨	莹	萤	营	荧	蝇	迎	赢	盈
D330	影	颖	硬	映	哟	拥	佣	臃	痈	庸	雍	踊	蛹	咏	泳	涌
D340	永	恿	勇	用	幽	优	悠	忧	尤	由	邮	铀	犹	油	游	酉
D350	有	友	右	佑	釉	诱	又	幼	迂	淤	于	盂	榆	虞	愚	舆
D360	余	俞	逾	鱼	愉	渝	渔	隅	予	娱	雨	与	屿	禹	宇	语
D370	羽	玉	域	芋	郁	吁	遇	喻	峪	御	愈	欲	狱	育	誉	

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
D420		浴	寓	裕	预	豫	驭	鸳	渊	冤	元	垣	袁	原	援	辕
D430	园	员	圆	猿	源	缘	远	苑	愿	怨	院	曰	约	越	跃	钥
D440	岳	粤	月	悦	阅	耘	云	郧	匀	陨	允	运	蕴	酝	晕	韵
D450	孕	匝	砸	杂	栽	哉	灾	宰	载	再	在	咱	攒	暂	赞	赃
D460	脏	葬	遭	糟	凿	藻	枣	早	澡	蚤	躁	噪	造	皂	灶	燥
D470	责	择	则	泽	贼	怎	增	憎	曾	赠	扎	喳	渣	札	轧	

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
D520		铡	闸	眨	栅	榨	咋	乍	炸	诈	摘	斋	宅	窄	债	寨
D530	瞻	毡	詹	粘	沾	盏	斩	辗	崭	展	蘸	栈	占	战	站	湛
D540	绽	樟	章	彰	漳	张	掌	涨	杖	丈	帐	账	仗	胀	瘴	障
D550	招	昭	找	沼	赵	照	罩	兆	肇	召	遮	折	哲	蛰	辙	者
D560	锗	蔗	这	浙	珍	斟	真	甄	砧	臻	贞	针	侦	枕	疹	诊
D570	震	振	镇	阵	蒸	挣	睁	征	狰	争	怔	整	拯	正	政	

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
D620		帧	症	郑	证	芝	枝	支	吱	蜘	知	肢	脂	汁	之	织
D630	职	直	植	殖	执	值	侄	址	指	止	趾	只	旨	纸	志	挚
D640	掷	至	致	置	帜	峙	制	智	秩	稚	质	炙	痔	滞	治	窒
D650	中	盅	忠	钟	衷	终	种	肿	重	仲	众	舟	周	州	洲	诌
D660	粥	轴	肘	帚	咒	皱	宙	昼	骤	珠	株	蛛	朱	猪	诸	诛
D670	逐	竹	烛	煮	拄	瞩	嘱	主	著	柱	助	蛀	贮	铸	筑	

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
D720		住	注	祝	驻	抓	爪	拽	专	砖	转	撰	赚	篆	桩	庄
D730	装	妆	撞	壮	状	椎	锥	追	赘	坠	缀	谆	准	捉	拙	卓
D740	桌	琢	茁	酌	啄	着	灼	浊	兹	咨	资	姿	滋	淄	孜	紫
D750	仔	籽	滓	子	自	渍	字	鬃	棕	踪	宗	综	总	纵	邹	走
D760	奏	揍	租	足	卒	族	祖	诅	阻	组	钻	纂	嘴	醉	最	罪
D770	尊	遵	昨	左	佐	柞	做	作	坐	座						

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
D820		亍	丌	兀	丐	廿	卅	丕	亘	丞	鬲	孬	噩	丨	禺	丿
D830	匕	乇	夭	爻	卮	氐	囟	胤	馗	毓	睾	鼗	丶	亟	鼐	乜
D840	乩	亓	芈	孛	啬	嘏	仄	厍	厝	厣	厥	厮	靥	赝	匚	叵
D850	匦	匮	匾	赜	卦	卣	刂	刈	刎	刭	刳	刿	剀	剌	剞	剡
D860	剜	蒯	剽	劂	劁	劐	劓	冂	罔	亻	仃	仉	仂	仨	仡	仫
D870	仞	伛	仳	伢	佤	仵	伥	伧	伉	伫	佞	佧	攸	佚	佝	

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
D920		佟	佗	伲	伽	佶	佴	侑	侉	侃	侏	佾	佻	侪	佼	侬
D930	侔	俦	俨	俪	俅	俚	俣	俜	俑	俟	俸	倩	偌	俳	倬	倏
D940	倮	倭	俾	倜	倌	倥	倨	偾	偃	偕	偈	偎	偬	偻	傥	傧
D950	傩	傺	僖	儆	僭	僬	僦	僮	儇	儋	仝	氽	佘	佥	俎	龠
D960	汆	籴	兮	巽	黉	馘	冁	夔	勹	匍	訇	匐	凫	夙	兕	亠
D970	兖	亳	衮	袤	亵	脔	裒	禀	嬴	蠃	羸	冫	冱	冽	冼	

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
DA20		凇	冖	冢	冥	讠	讦	讧	讪	讴	讵	讷	诂	诃	诋	诏
DA30	诎	诒	诓	诔	诖	诘	诙	诜	诟	诠	诤	诨	诩	诮	诰	诳
DA40	诶	诹	诼	诿	谀	谂	谄	谇	谌	谏	谑	谒	谔	谕	谖	谙
DA50	谛	谘	谝	谟	谠	谡	谥	谧	谪	谫	谮	谯	谲	谳	谵	谶
DA60	卩	卺	阝	阢	阡	阱	阪	阽	阼	陂	陉	陔	陟	陧	陬	陲
DA70	陴	隈	隍	隗	隰	邗	邛	邝	邙	邬	邡	邴	邳	邶	邺	

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
DB20		邸	邰	郏	郅	邾	郐	郄	郇	郓	郦	郢	郜	郗	郛	郫
DB30	郯	郾	鄄	鄢	鄞	鄣	鄱	鄯	鄹	酃	酆	刍	奂	劢	劬	劭
DB40	劾	哿	勐	勖	勰	叟	燮	矍	廴	凵	凼	鬯	厶	弁	畚	巯
DB50	坌	垩	垡	塾	墼	壅	壑	圩	圬	圪	圳	圹	圮	圯	坜	圻
DB60	坂	坩	垅	坫	垆	坼	坻	坨	坭	坶	坳	垭	垤	垌	垲	埏
DB70	垧	垴	垓	垠	埕	埘	埚	埙	埒	垸	埴	埯	埸	埤	埝	

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
DC20		堋	堍	埽	埭	堀	堞	堙	塄	堠	塥	塬	墁	墉	墚	墀
DC30	馨	鼙	懿	艹	艽	艿	芏	芊	芨	芄	芎	芑	芗	芙	芫	芸
DC40	芾	芰	苈	苊	苣	芘	芷	芮	苋	苌	苁	芩	芴	芡	芪	芟
DC50	苄	苎	芤	苡	茉	苷	苤	茏	茇	苜	苴	苒	苘	茌	苻	苓
DC60	茑	茚	茆	茔	茕	苠	苕	茜	荑	荛	荜	茈	莒	茼	茴	茱
DC70	莛	荞	茯	荏	荇	荃	荟	荀	茗	荠	茭	茺	茳	荦	荥	

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
DD20		荨	茛	荩	荬	荪	荭	荮	莰	荸	莳	莴	莠	莪	莓	莜
DD30	莅	荼	莶	莩	荽	莸	荻	莘	莞	莨	莺	莼	菁	萁	菥	菘
DD40	堇	萘	萋	菝	菽	菖	萜	萸	萑	萆	菔	菟	萏	萃	菸	菹
DD50	菪	菅	菀	萦	菰	菡	葜	葑	葚	葙	葳	蒇	蒈	葺	蒉	葸
DD60	萼	葆	葩	葶	蒌	蒎	萱	葭	蓁	蓍	蓐	蓦	蒽	蓓	蓊	蒿
DD70	蒺	蓠	蒡	蒹	蒴	蒗	蓥	蓣	蔌	甍	蔸	蓰	蔹	蔟	蔺	

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
DE20		蕖	蔻	蓿	蓼	蕙	蕈	蕨	蕤	蕞	蕺	瞢	蕃	蕲	蕻	薤
DE30	薨	薇	薏	蕹	薮	薜	薅	薹	薷	薰	藓	藁	藜	藿	蘧	蘅
DE40	蘩	蘖	蘼	廾	弈	夼	奁	耷	奕	奚	奘	匏	尢	尥	尬	尴
DE50	扌	扪	抟	抻	拊	拚	拗	拮	挢	拶	挹	捋	捃	掭	揶	捱
DE60	捺	掎	掴	捭	掬	掊	捩	掮	掼	揲	揸	揠	揿	揄	揞	揎
DE70	摒	揆	掾	摅	摁	搋	搛	搠	搌	搦	搡	摞	撄	摭	撖	

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
DF20		摺	撷	撸	撙	撺	擀	擐	擗	擤	擢	攉	攥	攮	弋	忒
DF30	甙	弑	卟	叱	叽	叩	叨	叻	吒	吖	吆	呋	呒	呓	呔	呖
DF40	呃	吡	呗	呙	吣	吲	咂	咔	呷	呱	呤	咚	咛	咄	呶	呦
DF50	咝	哐	咭	哂	咴	哒	咧	咦	哓	哔	呲	咣	哕	咻	咿	哌
DF60	哙	哚	哜	咩	咪	咤	哝	哏	哞	唛	哧	唠	哽	唔	哳	唢
DF70	唣	唏	唑	唧	唪	啧	喏	喵	啉	啭	啁	啕	唿	啐	唼	

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
E020		唷	啖	啵	啶	啷	唳	唰	啜	喋	嗒	喃	喱	喹	喈	喁
E030	喟	啾	嗖	喑	啻	嗟	喽	喾	喔	喙	嗪	嗷	嗉	嘟	嗑	嗫
E040	嗬	嗔	嗦	嗝	嗄	嗯	嗥	嗲	嗳	嗌	嗍	嗨	嗵	嗤	辔	嘞
E050	嘈	嘌	嘁	嘤	嘣	嗾	嘀	嘧	嘭	噘	嘹	噗	嘬	噍	噢	噙
E060	噜	噌	噔	嚆	噤	噱	噫	噻	噼	嚅	嚓	嚯	囔	囗	囝	囡
E070	囵	囫	囹	囿	圄	圊	圉	圜	帏	帙	帔	帑	帱	帻	帼	

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
E120		帷	幄	幔	幛	幞	幡	岌	屺	岍	岐	岖	岈	岘	岙	岑
E130	岚	岜	岵	岢	岽	岬	岫	岱	岣	峁	岷	峄	峒	峤	峋	峥
E140	崂	崃	崧	崦	崮	崤	崞	崆	崛	嵘	崾	崴	崽	嵬	嵛	嵯
E150	嵝	嵫	嵋	嵊	嵩	嵴	嶂	嶙	嶝	豳	嶷	巅	彳	彷	徂	徇
E160	徉	後	徕	徙	徜	徨	徭	徵	徼	衢	彡	犭	犰	犴	犷	犸
E170	狃	狁	狎	狍	狒	狨	狯	狩	狲	狴	狷	猁	狳	猃	狺	

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
E220		狻	猗	猓	猡	猊	猞	猝	猕	猢	猹	猥	猬	猸	猱	獐
E230	獍	獗	獠	獬	獯	獾	舛	夥	飧	夤	夂	饣	饧	饨	饩	饪
E240	饫	饬	饴	饷	饽	馀	馄	馇	馊	馍	馐	馑	馓	馔	馕	庀
E250	庑	庋	庖	庥	庠	庹	庵	庾	庳	赓	廒	廑	廛	廨	廪	膺
E260	忄	忉	忖	忏	怃	忮	怄	忡	忤	忾	怅	怆	忪	忭	忸	怙
E270	怵	怦	怛	怏	怍	怩	怫	怊	怿	怡	恸	恹	恻	恺	恂	

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
E320		恪	恽	悖	悚	悭	悝	悃	悒	悌	悛	惬	悻	悱	惝	惘
E330	惆	惚	悴	愠	愦	愕	愣	惴	愀	愎	愫	慊	慵	憬	憔	憧
E340	憷	懔	懵	忝	隳	闩	闫	闱	闳	闵	闶	闼	闾	阃	阄	阆
E350	阈	阊	阋	阌	阍	阏	阒	阕	阖	阗	阙	阚	丬	爿	戕	氵
E360	汔	汜	汊	沣	沅	沐	沔	沌	汨	汩	汴	汶	沆	沩	泐	泔
E370	沭	泷	泸	泱	泗	沲	泠	泖	泺	泫	泮	沱	泓	泯	泾	

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
E420		洹	洧	洌	浃	浈	洇	洄	洙	洎	洫	浍	洮	洵	洚	浏
E430	浒	浔	洳	涑	浯	涞	涠	浞	涓	涔	浜	浠	浼	浣	渚	淇
E440	淅	淞	渎	涿	淠	渑	淦	淝	淙	渖	涫	渌	涮	渫	湮	湎
E450	湫	溲	湟	溆	湓	湔	渲	渥	湄	滟	溱	溘	滠	漭	滢	溥
E460	溧	溽	溻	溷	滗	溴	滏	溏	滂	溟	潢	潆	潇	漤	漕	滹
E470	漯	漶	潋	潴	漪	漉	漩	澉	澍	澌	潸	潲	潼	潺	濑	

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
E520		濉	澧	澹	澶	濂	濡	濮	濞	濠	濯	瀚	瀣	瀛	瀹	瀵
E530	灏	灞	宀	宄	宕	宓	宥	宸	甯	骞	搴	寤	寮	褰	寰	蹇
E540	謇	辶	迓	迕	迥	迮	迤	迩	迦	迳	迨	逅	逄	逋	逦	逑
E550	逍	逖	逡	逵	逶	逭	逯	遄	遑	遒	遐	遨	遘	遢	遛	暹
E560	遴	遽	邂	邈	邃	邋	彐	彗	彖	彘	尻	咫	屐	屙	孱	屣
E570	屦	羼	弪	弩	弭	艴	弼	鬻	屮	妁	妃	妍	妩	妪	妣	

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
E620		妗	姊	妫	妞	妤	姒	妲	妯	姗	妾	娅	娆	姝	娈	姣
E630	姘	姹	娌	娉	娲	娴	娑	娣	娓	婀	婧	婊	婕	娼	婢	婵
E640	胬	媪	媛	婷	婺	媾	嫫	媲	嫒	嫔	媸	嫠	嫣	嫱	嫖	嫦
E650	嫘	嫜	嬉	嬗	嬖	嬲	嬷	孀	尕	尜	孚	孥	孳	孑	孓	孢
E660	驵	驷	驸	驺	驿	驽	骀	骁	骅	骈	骊	骐	骒	骓	骖	骘
E670	骛	骜	骝	骟	骠	骢	骣	骥	骧	纟	纡	纣	纥	纨	纩	

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
E720		纭	纰	纾	绀	绁	绂	绉	绋	绌	绐	绔	绗	绛	绠	绡
E730	绨	绫	绮	绯	绱	绲	缍	绶	绺	绻	绾	缁	缂	缃	缇	缈
E740	缋	缌	缏	缑	缒	缗	缙	缜	缛	缟	缡	缢	缣	缤	缥	缦
E750	缧	缪	缫	缬	缭	缯	缰	缱	缲	缳	缵	幺	畿	巛	甾	邕
E760	玎	玑	玮	玢	玟	珏	珂	珑	玷	玳	珀	珉	珈	珥	珙	顼
E770	琊	珩	珧	珞	玺	珲	琏	琪	瑛	琦	琥	琨	琰	琮	琬	

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
E820		琛	琚	瑁	瑜	瑗	瑕	瑙	瑷	瑭	瑾	璜	璎	璀	璁	璇
E830	璋	璞	璨	璩	璐	璧	瓒	璺	韪	韫	韬	杌	杓	杞	杈	杩
E840	枥	枇	杪	杳	枘	枧	杵	枨	枞	枭	枋	杷	杼	柰	栉	柘
E850	栊	柩	枰	栌	柙	枵	柚	枳	柝	栀	柃	枸	柢	栎	柁	柽
E860	栲	栳	桠	桡	桎	桢	桄	桤	梃	栝	桕	桦	桁	桧	桀	栾
E870	桊	桉	栩	梵	梏	桴	桷	梓	桫	棂	楮	棼	椟	椠	棹	

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
E920		椤	棰	椋	椁	楗	棣	椐	楱	椹	楠	楂	楝	榄	楫	榀
E930	榘	楸	椴	槌	榇	榈	槎	榉	楦	楣	楹	榛	榧	榻	榫	榭
E940	槔	榱	槁	槊	槟	榕	槠	榍	槿	樯	槭	樗	樘	橥	槲	橄
E950	樾	檠	橐	橛	樵	檎	橹	樽	樨	橘	橼	檑	檐	檩	檗	檫
E960	猷	獒	殁	殂	殇	殄	殒	殓	殍	殚	殛	殡	殪	轫	轭	轱
E970	轲	轳	轵	轶	轸	轷	轹	轺	轼	轾	辁	辂	辄	辇	辋	

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
EA20		辍	辎	辏	辘	辚	軎	戋	戗	戛	戟	戢	戡	戥	戤	戬
EA30	臧	瓯	瓴	瓿	甏	甑	甓	攴	旮	旯	旰	昊	昙	杲	昃	昕
EA40	昀	炅	曷	昝	昴	昱	昶	昵	耆	晟	晔	晁	晏	晖	晡	晗
EA50	晷	暄	暌	暧	暝	暾	曛	曜	曦	曩	贲	贳	贶	贻	贽	赀
EA60	赅	赆	赈	赉	赇	赍	赕	赙	觇	觊	觋	觌	觎	觏	觐	觑
EA70	牮	犟	牝	牦	牯	牾	牿	犄	犋	犍	犏	犒	挈	挲	掰	

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
EB20		搿	擘	耄	毪	毳	毽	毵	毹	氅	氇	氆	氍	氕	氘	氙
EB30	氚	氡	氩	氤	氪	氲	攵	敕	敫	牍	牒	牖	爰	虢	刖	肟
EB40	肜	肓	肼	朊	肽	肱	肫	肭	肴	肷	胧	胨	胩	胪	胛	胂
EB50	胄	胙	胍	胗	朐	胝	胫	胱	胴	胭	脍	脎	胲	胼	朕	脒
EB60	豚	脶	脞	脬	脘	脲	腈	腌	腓	腴	腙	腚	腱	腠	腩	腼
EB70	腽	腭	腧	塍	媵	膈	膂	膑	滕	膣	膪	臌	朦	臊	膻	

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
EC20		臁	膦	欤	欷	欹	歃	歆	歙	飑	飒	飓	飕	飙	飚	殳
EC30	彀	毂	觳	斐	齑	斓	於	旆	旄	旃	旌	旎	旒	旖	炀	炜
EC40	炖	炝	炻	烀	炷	炫	炱	烨	烊	焐	焓	焖	焯	焱	煳	煜
EC50	煨	煅	煲	煊	煸	煺	熘	熳	熵	熨	熠	燠	燔	燧	燹	爝
EC60	爨	灬	焘	煦	熹	戾	戽	扃	扈	扉	礻	祀	祆	祉	祛	祜
EC70	祓	祚	祢	祗	祠	祯	祧	祺	禅	禊	禚	禧	禳	忑	忐	

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
ED20		恝	恚	恧	恁	恙	恣	悫	愆	愍	慝	憩	憝	懋	懑	戆
ED30	肀	聿	沓	泶	淼	矶	矸	砀	砉	砗	砘	砑	斫	砭	砜	砝
ED40	砹	砺	砻	砟	砼	砥	砬	砣	砩	硎	硭	硖	硗	砦	硐	硇
ED50	硌	硪	碛	碓	碚	碇	碜	碡	碣	碲	碹	碥	磔	磙	磉	磬
ED60	磲	礅	磴	礓	礤	礞	礴	龛	黹	黻	黼	盱	眄	眍	盹	眇
ED70	眈	眚	眢	眙	眭	眦	眵	眸	睐	睑	睇	睃	睚	睨		

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
EE20		睢	睥	睿	瞍	睽	瞀	瞌	瞑	瞟	瞠	瞰	瞵	瞽	町	畀
EE30	畎	畋	畈	畛	畲	畹	疃	罘	罡	罟	詈	罨	罴	罱	罹	羁
EE40	罾	盍	盥	蠲	钅	钆	钇	钋	钊	钌	钍	钏	钐	钔	钗	钕
EE50	钚	钛	钜	钣	钤	钫	钪	钭	钬	钯	钰	钲	钴	钶	钷	钸
EE60	钹	钺	钼	钽	钿	铄	铈	铉	铊	铋	铌	铍	铎	铐	铑	铒
EE70	铕	铖	铗	铙	铘	铛	铞	铟	铠	铢	铤	铥	铧	铨	铪	

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
EF20		铩	铫	铮	铯	铳	铴	铵	铷	铹	铼	铽	铿	锃	锂	锆
EF30	锇	锉	锊	锍	锎	锏	锒	锓	锔	锕	锖	锘	锛	锝	锞	锟
EF40	锢	锪	锫	锩	锬	锱	锲	锴	锶	锷	锸	锼	锾	锿	镂	锵
EF5.0	镄	镅	镆	镉	镌	镎	镏	镒	镓	镔	镖	镗	镘	镙	镛	镞
EF60	镟	镝	镡	镢	镤	镥	镦	镧	镨	镩	镪	镫	镬	镯	镱	镲
EF70	镳	锺	矧	矬	雉	秕	秭	秣	秫	稆	嵇	稃	稂	稞	稔	

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
F020		稹	稷	穑	黏	馥	穰	皈	皎	皓	皙	皤	瓞	瓠	甬	鸠
F030	鸢	鸨	鸩	鸪	鸫	鸬	鸲	鸱	鸶	鸸	鸷	鸹	鸺	鸾	鹁	鹂
F040	鹄	鹆	鹇	鹈	鹉	鹋	鹌	鹎	鹑	鹕	鹗	鹚	鹛	鹜	鹞	鹣
F050	鹦	鹧	鹨	鹩	鹪	鹫	鹬	鹱	鹭	鹳	疒	疔	疖	疠	疝	疬
F060	疣	疳	疴	疸	痄	疱	疰	痃	痂	痖	痍	痣	痨	痦	痤	痫
F070	痧	瘃	痱	痼	痿	瘐	瘀	瘅	瘌	瘗	瘊	瘥	瘘	瘕	瘙	

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
F120		瘛	瘼	瘢	瘠	癀	瘭	瘰	瘿	瘵	癃	瘾	瘳	癍	癞	癔
F130	癜	癖	癫	癯	翊	竦	穸	穹	窀	窆	窈	窕	窦	窠	窬	窨
F140	窭	窳	衤	衩	衲	衽	衿	袂	袢	裆	袷	袼	裉	裢	裎	裣
F150	裥	裱	褚	裼	裨	裾	裰	褡	褙	褓	褛	褊	褴	褫	褶	襁
F160	襦	襻	疋	胥	皲	皴	矜	耒	耔	耖	耜	耠	耢	耥	耦	耧
F170	耩	耨	耱	耋	耵	聃	聆	聍	聒	聩	聱	覃	顸	颀	颃	

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
F220		颉	颌	颍	颏	颔	颚	颛	颞	颟	颡	颢	颥	颦	虍	虔
F230	虬	虮	虿	虺	虼	虻	蚨	蚍	蚋	蚬	蚝	蚧	蚣	蚪	蚓	蚩
F240	蚶	蛄	蚵	蛎	蚰	蚺	蚱	蚯	蛉	蛏	蚴	蛩	蛱	蛲	蛭	蛳
F250	蛐	蜓	蛞	蛴	蛟	蛘	蛑	蜃	蜇	蛸	蜈	蜊	蜍	蜉	蜣	蜻
F260	蜞	蜥	蜮	蜚	蜾	蝈	蜴	蜱	蜩	蜷	蜿	螂	蜢	蝽	蝾	蝻
F270	蝠	蝰	蝌	蝮	螋	蝓	蝣	蝼	蝤	蝙	蝥	螓	螯	螨	蟒	

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
F320		蟆	螈	螅	螭	螗	螃	螫	蟥	螬	螵	螳	蟋	蟓	螽	蟑
F330	蟀	蟊	蟛	蟪	蟠	蟮	蠖	蠓	蟾	蠊	蠛	蠡	蠹	蠼	缶	罂
F340	罄	罅	舐	竺	竽	笈	笃	笄	笕	笊	笫	笏	筇	笸	笪	笙
F350	笮	笱	笠	笥	笤	笳	笾	笞	筘	筚	筅	筵	筌	筝	筠	筮
F360	筻	筢	筲	筱	箐	箦	箧	箸	箬	箝	箨	箅	箪	箜	箢	箫
F370	箴	篑	篁	篌	篝	篚	篥	篦	篪	簌	篾	篼	簏	簖	簋	

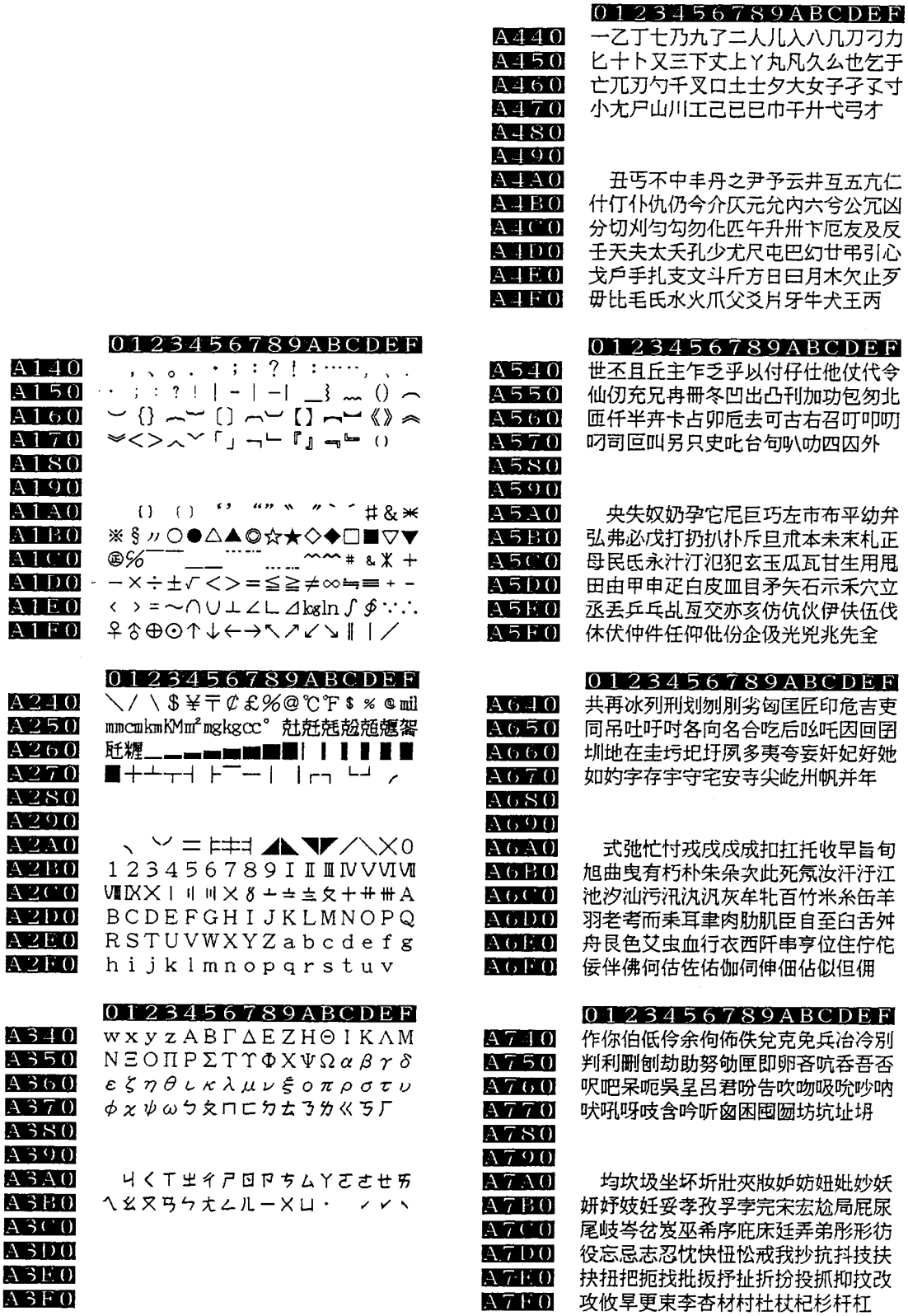
	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
F420		簟	簪	簦	簸	籁	籀	臾	舁	舂	舄	臬	衄	舡	舢	舣
F430	舭	舯	舨	舫	舸	舻	舳	舴	舾	艄	艉	艋	艏	艚	艟	艨
F440	衾	袅	袈	裘	裟	襞	羝	羟	羧	羯	羰	羲	籼	敉	粑	粝
F450	粜	粞	粢	粲	粼	粽	糁	糇	糌	糍	糈	糅	糗	糨	艮	暨
F460	羿	翎	翕	翥	翡	翦	翩	翮	翳	糸	絷	綦	綮	繇	纛	麸
F470	麴	赳	趄	趔	趑	趱	赧	赭	豇	豉	酊	酐	酎	酏	酤	

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
F520		酢	酡	酰	酩	酯	釅	釃	酲	酴	酹	醌	醅	醐	醍	醑
F530	醢	醣	醪	醭	醮	醯	醵	醴	醺	豕	鹺	躉	跫	踅	蹙	蹩
F540	趵	趿	趼	趺	蹌	跖	跗	跚	躒	跎	跏	跛	跆	跬	蹺	蹕
F550	跣	躚	躋	跤	踉	跽	踔	踝	踟	躓	踮	踣	躑	踺	蹀	踹
F560	踵	踽	踱	蹉	蹁	蹂	躡	蹣	蹊	躕	蹶	蹼	蹯	蹴	躅	躪
F570	躔	躐	躦	躞	豸	貂	貊	貅	貘	貔	斛	觖	觴	觚	觜	

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
F620		觥	觫	觶	訾	謦	靚	雩	靂	雯	霆	霽	霈	霏	霎	霪
F630	靄	霰	霾	齔	齟	齙	齠	齜	齦	齬	齪	齷	黽	黿	鼉	隹
F640	隼	雋	雎	雒	瞿	讎	銎	鑾	鋈	鏨	鍪	鏊	鎏	鐾	鑫	魷
F650	魴	鮁	鮃	鮎	鱸	穌	鮒	鱟	鮐	鮭	鮚	鮪	鮞	鱭	鮫	鯗
F660	鱘	鯁	鱺	鰱	鰹	鰣	鰷	鯀	鯊	鯇	鯽	鯖	鯪	鯫	鯡	鯤
F670	鯧	鯝	鯢	鯰	鯛	鯴	鯔	鱝	鰈	鱷	鰍	鰒	鰉	鯿	鰠	

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
F720		鰲	鰭	鰨	鰥	鰩	鰳	鰾	鱈	鰻	鰵	鱅	鱖	鱔	鱒	鱧
F730	靼	鞅	韃	鞽	鞔	韉	鞫	鞣	韝	鞴	骱	骰	骷	鶻	骶	骺
F740	骼	髁	髀	髏	髂	髖	髕	髑	魅	魃	魘	魎	魈	魍	魑	饗
F750	饜	餮	饕	饔	髟	髡	髦	髯	髫	髻	髭	髹	鬈	鬏	鬢	鬟
F760	鬣	麽	麾	縻	麂	麇	麈	麋	麒	鏖	麝	麟	黛	黜	黝	黠
F770	黟	黢	黷	黧	黥	黲	黯	鼢	鼬	鼯	鼴	鼷	鼽	鼾	齇	

5-4 Taiwanese Language Codes



	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
A840	杓	杗	步	每	求	汞	沙	沁	沈	沉	沅	沛	汪	決	沐	汰
A850	沌	汨	沖	沒	汽	沃	汲	汾	汴	沆	汶	沍	沔	沘	沂	灶
A860	灼	災	灸	牢	牡	牠	狄	狂	玖	甬	甫	男	甸	皂	盯	矣
A870	私	秀	禿	究	系	罕	肖	肓	肝	肘	肛	肚	育	良	芒	
A880																
A890																
A8A0		芋	芍	見	角	言	谷	豆	豕	貝	赤	走	足	身	車	辛
A8B0	辰	迂	迆	迅	迄	巡	邑	邢	邪	邦	那	酉	釆	里	防	阮
A8C0	阱	阪	阬	並	乖	乳	事	些	亞	享	京	佯	依	侍	佳	使
A8D0	佬	供	例	來	侃	佰	併	侈	佩	佻	侖	佾	侏	侑	佺	兔
A8E0	兒	兕	兩	具	其	典	冽	函	刻	券	刷	刺	到	刮	制	剁
A8F0	劾	劻	卒	協	卓	卑	卦	卷	卸	卹	取	叔	受	味	呵	

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
A940	咖	呸	咕	咀	呻	呷	咄	咒	咆	呼	咐	呱	呶	和	咚	呢
A950	周	咋	命	咎	固	垃	坷	坪	坩	坡	坦	坤	坼	夜	奉	奇
A960	奈	奄	奔	妾	妻	委	妹	妮	姑	姆	姐	姍	始	姓	姊	妯
A970	妳	姒	姅	孟	孤	季	宗	定	官	宜	宙	宛	尚	屈	居	
A980																
A990																
A9A0		屆	岷	岡	岸	岩	岫	岱	岳	帘	帚	帖	帕	帛	帑	幸
A9B0	庚	店	府	底	庖	延	弦	弧	弩	往	征	彿	彼	忝	忠	忽
A9C0	念	忿	怏	怔	怯	怵	怖	怪	怕	怡	性	怩	怫	怛	或	戕
A9D0	房	戾	所	承	拉	拌	拄	抿	拂	抹	拒	招	披	拓	拔	拋
A9E0	拈	抨	抽	押	拐	拙	拇	拍	抵	拚	抱	拘	拖	拗	拆	抬
A9F0	拎	放	斧	於	旺	昔	易	昌	昆	昂	明	昀	昏	昕	昊	

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
AA40	昇	服	朋	杭	枋	枕	東	果	杳	杷	枇	枝	林	杯	杰	板
AA50	枉	松	析	杵	枚	枓	杼	杪	杲	欣	武	歧	歿	氓	氛	泣
AA60	注	泳	沱	泌	泥	河	沽	沾	沼	波	沫	法	泓	沸	泄	油
AA70	況	沮	泗	泅	泱	沿	治	泡	泛	泊	沬	泯	泜	泖	泠	
AA80																
AA90																
AAA0		炕	炎	炒	炊	炙	爬	爭	爸	版	牧	物	狀	狎	狙	狗
AAB0	狐	玩	玨	玟	玫	玥	甽	疝	疙	疚	的	盂	盲	直	知	矽
AAC0	社	祀	祁	秉	秈	空	穹	竺	糾	罔	羌	羋	者	肺	肥	肢
AAD0	肱	股	肫	肩	肴	肪	肯	臥	臾	舍	芳	芝	芙	芭	芽	芟
AAE0	芹	花	芬	芥	芯	芸	芣	芰	芾	芷	虎	虱	初	表	軋	迎
AAF0	返	近	邵	邸	邱	邶	采	金	長	門	阜	陀	阿	阻	附	

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
AB40	陂	隹	雨	青	非	亟	亭	亮	信	侵	侯	便	俠	俑	俏	保
AB50	促	侶	俘	俟	俊	俗	侮	俐	俄	係	俚	俎	俞	侷	胄	冒
AB60	冑	冠	剎	剃	削	前	剌	剋	則	勇	勉	勃	勁	匍	南	卻
AB70	厚	叛	咬	哀	咨	哎	哉	咸	咦	咳	哇	哂	咽	咪	品	
AB80																
AB90																
ABA0		哄	哈	咯	咫	咱	咻	咩	咧	咿	囿	垂	型	垠	垣	垢
ABB0	城	垮	垓	奕	契	奏	奎	奐	姜	姘	姿	姣	姨	娃	姥	姪
ABC0	姚	姦	威	姻	孩	宣	宦	室	客	宥	封	屎	屏	屍	屋	峙
ABD0	峒	巷	帝	帥	帟	幽	庠	度	建	弈	弭	彥	很	待	徊	律
ABE0	徇	後	徉	怒	思	怠	急	怎	怨	恍	恰	恨	恢	恆	恃	恬
ABF0	恫	恪	恤	扁	拜	挖	按	拼	拭	持	拮	拽	指	拱	拷	

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
AC40	拯	括	拾	拴	挑	挂	政	故	斫	施	既	春	昭	映	昧	是
AC50	星	昨	昱	昤	曷	柿	染	柱	柔	某	柬	架	枯	柵	柩	柯
AC60	柄	柑	枴	柚	查	枸	柏	柞	柳	枰	柙	柢	柝	柒	歪	殃
AC70	殆	段	毒	毗	氟	泉	洋	洲	洪	流	津	洌	洱	洞	洗	
AC80																
AC90																
ACA0		活	洽	派	洶	洛	泵	洹	洧	洸	洩	洮	洵	洎	洫	炫
ACB0	為	炳	炬	炯	炭	炸	炮	炤	爰	牲	牯	牴	狩	狠	狡	玷
ACC0	珊	玻	玲	珍	珀	玳	甚	甭	畏	界	畎	畋	疫	疤	疥	疢
ACD0	疣	癸	皆	皇	皈	盈	盆	盃	盅	省	盹	相	眉	看	盾	盼
ACE0	眇	矜	砂	研	砌	砍	祆	祉	祈	祇	禹	禺	科	秒	秋	穿
ACF0	突	竿	竽	籽	紂	紅	紀	紉	紇	約	紆	缸	美	羿	耄	

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
AD40	耐	耍	耑	耶	胖	胥	胚	胃	胄	背	胡	胛	胎	胞	胤	胝
AD50	致	舢	苧	范	茅	苣	苛	苦	茄	若	茂	茉	苒	苗	英	茁
AD60	苜	苔	苑	苞	苓	苟	苯	茆	虐	虹	虻	虺	衍	衫	要	觔
AD70	計	訂	訃	貞	負	赴	赳	趴	軍	軌	述	迦	迢	迪	迥	
AD80																
AD90																
ADA0		迭	迫	迤	迨	郊	郎	郁	郃	酋	酊	重	閂	限	陋	陌
ADB0	降	面	革	韋	韭	音	頁	風	飛	食	首	香	乘	亳	倌	倍
ADC0	倣	俯	倦	倥	俸	倩	倖	倆	值	借	倚	倒	們	俺	倀	倔
ADD0	倨	俱	倡	個	候	倘	俳	修	倭	倪	俾	倫	倉	兼	冤	冥
ADE0	冢	凍	凌	准	凋	剖	剜	剔	剛	剝	匪	卿	原	厝	叟	哨
ADF0	唐	唁	唷	哼	哥	哲	唆	哺	唔	哩	哭	員	唉	哮	哪	

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
AE40	哦	唧	唇	哽	唏	圃	圄	埂	埔	埋	埃	埆	夏	套	奘	奚
AE50	娑	娘	娜	娟	娛	娓	姬	娠	娣	娩	娥	娌	娉	孫	屘	宰
AE60	害	家	宴	宮	宵	容	宸	射	屑	展	屐	峭	峽	峻	峪	峨
AE70	峰	島	崁	峴	差	席	師	庫	庭	座	弱	徒	徑	徐	恙	
AE80																
AE90																
AEA0		恣	恥	恐	恕	恭	恩	息	悄	悟	悚	悍	悔	悌	悅	悖
AEB0	扇	拳	挈	拿	捎	挾	振	捕	捂	捆	捏	捉	挺	捐	挽	挪
AEC0	挫	挨	捍	捌	效	敉	料	旁	旅	時	晉	晏	晃	晒	晌	晅
AED0	晁	書	朔	朕	朗	校	核	案	框	桓	根	桂	桔	栩	梳	栗
AEE0	桌	桑	栽	柴	桐	桀	格	桃	株	桅	栓	栘	桁	殊	殉	殷
AEF0	氣	氧	氨	氦	氤	泰	浪	涕	消	涇	浦	浸	海	浙	涓	

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
AF40	浬	涉	浮	浚	浴	浩	涌	涊	浹	涅	浥	涔	烊	烘	烤	烙
AF50	烈	烏	爹	特	狼	狹	狽	狸	狷	玆	班	琉	珮	珠	珪	珞
AF60	畔	畝	畜	畚	留	疾	病	症	疲	疳	疽	疼	疹	痂	疸	皋
AF70	皰	益	盍	盎	眩	真	眠	眨	矩	砰	砧	砸	砝	破	砷	
AF80																
AF90																
AFA0		砥	砭	砠	砟	砲	祕	祐	祠	祟	祖	神	祝	祗	祚	秤
AFB0	秣	秧	租	秦	秩	秘	窄	窈	站	笆	笑	粉	紡	紗	紋	紊
AFC0	素	索	純	紐	紕	級	紜	納	紙	紛	缺	罟	羔	翅	翁	耆
AFD0	耘	耕	耙	耗	耽	耿	胱	脂	胰	脅	胭	胴	脆	胸	胳	脈
AFE0	能	脊	胼	胯	臭	臬	舀	舐	航	舫	舨	般	芻	茫	荒	荔
AFF0	荊	茸	荐	草	茵	茴	荏	茲	茹	茶	茗	荀	茱	茨	荃	

	0123456789ABCDEF
B040	虔蚊蚪蚓蚤蚩蚌蚣蚜衰衷袁袂衽衹記
B050	訐討訌訕訊託訓訖訏訑豈豺豹財貢起
B060	躬軒軔軏辱送逆迷退迺迴逃追逅迸邕
B070	郡郝郢酒配酌釘針釗釜釙閃院陣陡
B080	
B090	
B0A0	陛陝除陘陞隻飢馬骨高鬥鬲鬼乾偺
B0B0	偽停假偃偌做偉健偶偎偕偵側偷偏倏
B0C0	偯偭兜冕凰剪副勒務勘動匐匏匙匿區
B0D0	匾參曼商啪啦啄啞啡啃啊唱啖問啕唯
B0E0	啤唸售啜唬啣唳啁啗圈國圉域堅堊堆
B0F0	埠埤基堂堵執培夠奢娶婁婉婦婪婀

	0123456789ABCDEF
B140	娼婢婚婆婊孰寇寅寄寂宿密尉專將屠
B150	屜屝崇崆崎崛崖崢崑崩崔崙崤崧崗巢
B160	常帶帳帷康庸庶庵庾張強彗彬彩彫得
B170	徙從徘御徠徜恿患悉悠您惋悴惦悽
B180	
B190	
B1A0	情悻悵惜悼惘惕惆惟悸惚惇戚戛扈
B1B0	掠控捲掖探接捷捧掘措捱掩掉掃掛捫
B1C0	推掄授掙採掬排掏掀捻捩捨捺敝敖救
B1D0	教敗啟敏敘敕敔斜斛斬族旋旌旎晝晚
B1E0	晤晨晦晞曹勗望梁梯梢梓梵桿桶梱梧
B1F0	梗械梃棄梭梆梅梔條梨梟梡梂欲殺

	0123456789ABCDEF
B240	毫毬氫涎涼淳淙液淡淌淤添淺清淇淋
B250	涯淑涮淞淹涸混淵淅淒渚涵淚淫淘淪
B260	深淮淨淆淄涪淬涿淦烹焉焊烽烯爽牽
B270	犁猜猛猖猓猙率琅琊球理現琍瓠瓶
B280	
B290	
B2A0	瓷甜產略畦畢異疏痔痕疵痊痍皎盔
B2B0	盒盛眷眾眼眶眸眺硫硃硎祥票祭移窒
B2C0	窕笠笨笛第符笙笞笮粒粗粕絆絃統紮
B2D0	紹紼絀細紳組累終紲紱缽羞羚翌翎習
B2E0	耜聊聆脯脖脣脫脩脰脤舂舵舷舶船莎
B2F0	莞莘莽莢莖莚莫莒莊莓莉莠荷荻荼

	0123456789ABCDEF
B340	莆莧處彪蛇蛀蚶蛄蚵蛆蛋蚱蚯蛉術袞
B350	袈被袒袖袍袋覓規訪訝訣訥許設訟訛
B360	訢豉豚販責貫貨貪貧赧赦趾趺軛軟這
B370	逍通逗連速逝逐逕逞造透逢逖逛途
B380	
B390	
B3A0	部郭都酗野釵釦釣釧釭釩閉陪陵陳
B3B0	陸陰陴陶陷陬雀雪雯章竟頂頃魚鳥鹵
B3C0	鹿麥麻傢傍傅備傑傀傖傘傚最凱割剴
B3D0	創剩勞勝勛博厥啻喀喧啼喊喝喘喂喜
B3E0	喪喔喇喋喃喳單喟唾喲喚喻喬喱啾喉
B3F0	喫喙圍堯堪場堤堰報堡堝堠壹壺奠

	0123456789ABCDEF
B440	婷媚婿媒媛媧孳孱寒富寓寐尊尋就嵌
B450	嵐崴嵇巽幅帽幀幃幾廊廁廂廄弼彭復
B460	循徨惑惡悲悶惠愜愣惺愕惰惻惴慨惱
B470	愎惶愉愀愒戟扉掣掌描揀揩揉揆揍
B480	
B490	
B4A0	插揣提握揖揭揮捶援揪換摒揚揹敞
B4B0	敦敢散斑斐斯普晰晴晶景暑智晾晷曾
B4C0	替期朝棺棕棠棘棗椅棟棵森棧棹棒棲
B4D0	棣棋棍植椒椎棉棚楮棻款欺欽殘殖殼
B4E0	毯氮氯氬港游湔渡渲湧湊渠渥渣減湛
B4F0	湘渤湖湮渭渦湯渴湍渺測湃渝渾滋

	0123456789ABCDEF
B540	溉渙湎湣湄湲湩湟焙焚焦焰無然煮焜
B550	牌犄犀猶猥猴猩琺琪琳琢琥琵琶琴琯
B560	琛琦琨甥甦畫番痢痛痣痙痘痞痠登發
B570	皖皓皴盜睏短硝硬硯稍稈程稅稀窘
B580	
B590	
B5A0	窗窖童竣等策筆筐筒答筍筋筏筑粟
B5B0	粥絞結絨絕紫絮絲絡給絢絰絳善翔翕
B5C0	耋聒肅腕腔腋腑腎脹腆脾腌腓腴舒舜
B5D0	菩萃菸萍菠菅萋菁華菱菴著萊菰萌菌
B5E0	菽菲菊萸萎萄菜萇菔菟虛蛟蛙蛭蛔蛛
B5F0	蛤蛐蛞街裁裂袱覃視註詠評詞証詁

	0123456789ABCDEF
B640	詔詛詐詆訴診訶詖象貂貯貼貳貽賁費
B650	賀貴買貶貿貸越超趁跎距跋跚跑跌跛
B660	跆軻軸軼辜逮逵週逸進逶鄂郵鄉郾酣
B670	酥量鈔鈕鈣鈉鈞鈍鈐鈇鈑閔閏開閑
B680	
B690	
B6A0	間閒閎隊階隋陽隅隆隍陲隄雁雅雄
B6B0	集雇雯雲韌項順須飧飪飯飩飲飭馮馭
B6C0	黃黍黑亂傭債傲傳僅傾催傷傻傯僇剿
B6D0	剷剽募勦勤勢勣匯嗟嗨嗓嗦嗎嗜嗇嗑
B6E0	嗣嗤嗯嗚嗡嗅嗆嗥嗉園圓塞塑塘塗塚
B6F0	塔填塌塭塊塢塒塋奧嫁嫉嫌媾媽媼

	0123456789ABCDEF
B740	媳嫂媲嵩嵯幌幹廉廈弒彙徬微愚意慈
B750	感想愛惹愁愈慎慌慄慍愾愴愧愍愆愷
B760	戡戢搓搾搞搪搭搽搬搏搜搔損搶搖搗
B770	搆敬斟新暗暉暇暈暖暄暘暍會榔業
B780	
B790	
B7A0	楚楷楠楔極椰概楊楨楫楞楓楹榆楝
B7B0	楣楛歇歲毀殿毓毽溢溯滓溶滂源溝滇
B7C0	滅溥溘溼溺溫滑準溜滄滔溪溧溴煎煙
B7D0	煩煤煉照煜煬煦煌煥煞煆煨煖爺牒猷
B7E0	獅猿猾瑯瑚瑕瑟瑞瑁琿瑙瑛瑜當畸瘀
B7F0	痰瘁痲痹痺瘍痴痳盞盟睛睫睦睞督

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
B840	睹	睪	睞	睜	睥	睨	睢	矮	碎	碰	碗	碘	碌	碉	硼	碑
B850	碓	碇	祺	祿	禁	萬	禽	稜	稚	稠	稔	稟	稞	窟	窠	筷
B860	節	筠	筮	筧	粱	粳	粵	經	絹	綑	綁	綏	絛	置	罩	罪
B870	署	義	羨	群	聖	聘	肆	肄	腱	腰	腸	腥	腮	腳	腫	
B880																
B890																
B8A0		腹	腺	腦	舅	艇	蒂	葷	落	萱	葵	葦	葫	葉	葬	葛
B8B0	萼	萵	葡	董	葩	葭	葆	虞	虜	號	蛹	蜓	蜈	蜇	蜀	蛾
B8C0	蛻	蜂	蜃	蜆	蜊	衙	裟	裔	裙	補	裘	裝	裡	裊	裕	裒
B8D0	覜	解	詫	該	詳	試	詩	詰	誇	詼	詣	誠	話	誅	詭	詢
B8E0	詮	詬	詹	詻	訾	詨	豢	貊	貉	賊	資	賈	賄	貲	賃	賂
B8F0	賅	跡	跟	跨	路	跳	跺	跪	跤	跦	躲	較	載	軾	輊	

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
B940	辟	農	運	遊	道	遂	達	逼	違	遐	遇	遏	過	遍	遑	逾
B950	遁	鄒	鄗	酬	酪	酩	釉	鈷	鉗	鈸	鈽	鉀	鈾	鉛	鉋	鉤
B960	鉑	鈴	鉉	鉍	鉅	鈹	鈿	鉚	閘	隘	隔	隕	雍	雋	雉	雊
B970	雷	電	雹	零	靖	靴	靶	預	頑	頓	頊	頒	頌	飼	飴	
B980																
B990																
B9A0		飽	飾	馳	馱	馴	髡	鳩	麂	鼎	鼓	鼠	僧	僮	僥	僖
B9B0	僭	僚	僕	像	僑	僱	僎	僩	兢	凳	劃	劂	匱	厭	嗾	嘀
B9C0	嘛	嘗	嗽	嘔	嘆	嘉	嘍	嘎	嗷	嘖	嘟	嘈	嘐	嗶	團	圖
B9D0	塵	塾	境	墓	墊	塹	墅	塽	壽	夥	夢	夤	奪	奩	嫡	嫦
B9E0	嫩	嫗	嫖	嫘	嫣	孵	寞	寧	寡	寥	實	寨	寢	寤	察	對
B9F0	屢	嶄	嶇	幛	幣	幕	幗	幔	廓	廖	弊	彆	彰	徹	慇	

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
BA40	愿	態	慷	慢	慣	慟	慚	慘	慵	截	撇	摘	摔	撤	摸	摟
BA50	摺	摑	摧	搴	摭	摻	敲	斡	旗	旖	暢	暨	暝	榜	榨	榕
BA60	槁	榮	槓	構	榛	榷	榻	榫	榴	槐	槍	榭	槌	榦	槃	榣
BA70	歉	歌	氳	漳	演	滾	漓	滴	漩	漾	漠	漬	漏	漂	漢	
BA80																
BA90																
BAA0		滿	滯	漆	漱	漸	漲	漣	漕	漫	漯	澈	漪	滬	漁	滲
BAB0	滌	滷	熔	熙	煽	熊	熄	熒	爾	犒	犖	獄	獐	瑤	瑣	瑪
BAC0	瑰	瑭	甄	疑	瘧	瘍	瘋	瘉	瘓	盡	監	瞄	睽	睿	睡	磁
BAD0	碟	碧	碳	碩	碣	禎	福	禍	種	稱	窪	窩	竭	端	管	箕
BAE0	箋	筵	算	箝	箔	箏	箸	箇	箄	粹	粽	精	綻	綰	綜	綽
BAF0	綾	綠	緊	綴	網	綱	綺	綢	綿	綵	綸	維	緒	緇	綬	

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
BB40	罰	翠	翡	翟	聞	聚	肇	腐	膀	膏	膈	膊	腿	膂	臧	臺
BB50	與	舔	舞	艋	蓉	蒿	蓆	蓄	蒙	蒞	蒲	蒜	蓋	蒸	蓀	蓓
BB60	蒐	蒼	蓑	蓊	蜿	蜜	蜻	蜢	蜥	蜴	蜘	蝕	蜷	蜩	裳	褂
BB70	裴	裹	裸	製	裨	褚	裯	誦	誌	語	誣	認	誡	誓	誤	
BB80																
BB90																
BBA0		說	誥	誨	誘	誑	誚	誧	豪	貍	貌	賓	賑	賒	赫	趙
BBB0	趕	跼	輔	輒	輕	輓	辣	遠	遘	遜	遣	遙	遞	遢	遝	遛
BBC0	鄙	鄘	鄞	酵	酸	酷	酴	鉸	銀	銅	銘	銖	鉻	銓	銜	銨
BBD0	鉼	銑	閡	閨	閩	閣	閥	閤	隙	障	際	雌	雒	需	靼	鞅
BBE0	韶	頗	領	颯	颱	餃	餅	餌	餉	駁	骯	骰	髦	魁	魂	鳴
BBF0	鳶	鳳	麼	鼻	齊	億	儀	僻	僵	價	儂	儈	儉	儅	凜	

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
BC40	劇	劈	劉	劍	劊	劌	厲	嘮	嘻	嘹	嘲	嘿	嘴	嘩	噓	噎
BC50	噗	噴	嘶	嘯	嘰	墀	墟	增	墳	墜	墮	墩	墦	奭	嬉	嫻
BC60	嬋	嫵	嬌	嬈	寮	寬	審	寫	層	履	嶝	嶔	幢	幟	幡	廢
BC70	廚	廟	廝	廣	廠	彈	影	德	徵	慶	慧	慮	慝	慕	憂	
BC80																
BC90																
BCA0		慼	慰	慫	慾	憧	憐	憫	憎	憬	憚	憤	憔	憮	戮	摩
BCB0	摯	摹	撞	撲	撈	撐	撰	撥	撓	撕	撩	撒	撮	播	撫	撚
BCC0	撬	撙	撢	撳	敵	敷	數	暮	暫	暴	暱	樣	樟	槨	樁	樞
BCD0	標	槽	模	樓	樊	槳	樂	樅	槭	樑	歐	歎	殤	毅	毆	漿
BCE0	潼	澄	潑	潦	潔	澆	潭	潛	潸	潮	澎	潺	潰	潤	澗	潘
BCF0	滕	潯	潠	潟	熟	熬	熱	熨	牖	犛	獎	獗	瑩	璋	璃	

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
BD40	瑾	璀	畿	瘠	瘩	瘟	瘤	瘦	瘡	瘢	皚	皺	盤	瞎	瞇	瞌
BD50	瞑	瞋	磋	磅	確	磊	碾	磕	碼	磐	稿	稼	穀	稽	稷	稻
BD60	窯	窮	箭	箱	範	箴	篆	篇	篁	箠	篌	糊	締	練	緯	緻
BD70	緘	緬	緝	編	緣	線	緞	緩	綞	緙	緲	緹	罵	罷	羯	
BD80																
BD90																
BDA0		翩	耦	膛	膜	膝	膠	膚	膘	蔗	蔽	蔚	蓮	蔬	蔭	蔓
BDB0	蔑	蔣	蔡	蔔	蓬	蔥	蓿	蔆	螂	蝴	蝶	蝠	蝦	蝸	蝨	蝙
BDC0	蝗	蝌	蝓	衛	衝	褐	複	褒	褓	褕	褊	誼	諒	談	諄	誕
BDD0	請	諸	課	諉	諂	調	誰	論	諍	誶	誹	諛	豌	豎	豬	賠
BDE0	賞	賦	賤	賬	賭	賢	賣	賜	質	賡	赭	趟	趣	踫	踐	踝
BDF0	踢	踏	踩	踟	踡	踞	躺	輝	輛	輟	輩	輦	輪	輜	輞	

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
BE40	輥	適	遮	遨	遭	遷	鄰	鄭	鄧	鄱	醇	醉	醋	醃	鋅	銻
BE50	銷	鋪	銬	鋤	鋁	銳	銼	鋒	鋇	鋰	銲	閭	閱	霄	霆	震
BE60	霉	靠	鞍	鞋	鞏	頡	頫	頜	颳	養	餓	餒	餘	駝	駐	駟
BE70	駛	駑	駕	駒	駙	骷	髮	髯	鬧	魅	魄	魷	魯	鴆	鴉	
BE80																
BE90																
BEA0		鴃	麩	麾	黎	墨	齒	儒	儘	儔	儐	儕	冀	冪	凝	劑
BEB0	劓	勳	噙	噫	噹	噩	噤	噸	噪	器	噥	噱	噯	噬	噢	噶
BEC0	壁	墾	壇	壅	奮	嬝	嬴	學	寰	導	彊	憲	憑	憩	憊	懍
BED0	憶	憾	懊	懈	戰	擅	擁	擋	撻	撼	據	擄	擇	擂	操	撿
BEE0	擒	擔	撾	整	曆	曉	暹	曄	曇	暸	樽	樸	樺	橙	橫	橘
BEF0	樹	橄	橢	橡	橋	橇	樵	機	橈	歙	歷	氅	濂	澱	澡	

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
BF40	濃	澤	濁	澧	澳	激	澹	澶	澦	澠	澴	熾	燉	燐	燒	燈
BF50	燕	熹	燎	燙	燜	燃	燄	獨	璜	璣	璘	璟	璞	瓢	甌	甍
BF60	瘴	瘸	瘺	盧	盥	瞠	瞞	瞟	瞥	磨	磚	磬	磧	禦	積	穎
BF70	穆	穌	穋	窺	篙	簑	築	篤	篛	篡	篩	篦	糕	糖	縊	
BF80																
BF90																
BFA0		縑	縈	縛	縣	縞	縝	縉	縐	罹	羲	翰	翱	翮	耨	膳
BFB0	膩	膨	臻	興	艘	艙	蕊	蕙	蕈	蕨	蕩	蕃	蕉	蕭	蕪	蕞
BFC0	螃	螟	螞	螢	融	衡	褪	褲	褥	褫	褡	親	覦	諦	諺	諫
BFD0	諱	謀	諜	諧	諮	諾	謁	謂	諷	諭	諳	諶	諼	豫	豭	貓
BFE0	賴	蹄	踱	踴	蹂	踹	踵	輻	輯	輸	輳	辨	辦	遵	遴	選
BFF0	遲	遼	遺	鄴	醒	錠	錶	鋸	錳	錯	錢	鋼	錫	錄	錚	

	0123456789ABCDEF
C040	錐錦錡錕錮錙閻隧隨險雕霎霑霖霍霓
C050	霏靛靜靦鞘頰頸頻頷頭頹頤餐館餞餛
C060	餡餚駭駢駱骸骼髻髭鬨鮑鴕鴣鴦鴨鴒
C070	鴛默黔龍龜優償儡儲勵嚎嚀嚐嚅嚇
C080	
C090	
C0A0	嚏壕壓壑壎嬰嬪嬤孺尷屨嶼嶺嶽嶸
C0B0	幫彌徽應懂懇懦懋戲戴擎擊擘擠擰擦
C0C0	擬擱擢擭斂斃曙曖檀檔檄檢檜櫛檣橾
C0D0	檗檐檠歜殮毚氈濘濱濟濠濛濤濫濯澀
C0E0	濬濡濩濕濮濰燧營燮燦燥燭燬燴燠爵
C0F0	牆獰獲璩環璦璨癆療癌盪瞳瞪瞰瞬

	0123456789ABCDEF
C140	瞧瞭矯磷磺磴磯礁禧禪穗隱簇簍篾篷
C150	簌篠糠糜糞糢糟糙糝縮績繆縷縲繃縫
C160	總縱繅繁縴縹繈縵縿縯罄翳翼聱聲聰
C170	聯聳臆臃膺臂臀膿膽臉膾臨舉艱薪
C180	
C190	
C1A0	薄蕾薜薑薔薯薛薇薨薊虧蟀蟑螳蟒
C1B0	蟆螫螻螺蟈蟋褻褶襄褸褽覬謎謗謙講
C1C0	謊謠謝謄謐豁谿豳賺賽購賸賻趨蹉蹋
C1D0	蹈蹊轄輾轂轅輿避遽還邁邂邀鄹醣醞
C1E0	醜鍍鎂錨鍵鍊鍥鍋錘鍾鍬鍛鍰鍚鍔闊
C1F0	闋闌闈闆隱隸雖霜霞鞠韓顆颶餵騁

	0123456789ABCDEF
C240	駿鮮鮫鮪鮭鴻鴿麋黏點黜黝黛鼾齋叢
C250	嚕嚮壙壘嬸彝懣戳擴擲擾攆擺擻擷斷
C260	曜朦檳檬櫃檻檸櫂檮檯歟歸殯瀉瀋濾
C270	瀆濺瀑瀏燻燼燾燸獷獵璧璿甕癖癘
C280	
C290	
C2A0	癒瞽瞿瞻瞼礎禮穡穢穠竄竅簫簧簪
C2B0	簞簣簡糧織繕繞繚繡繒繙罈翹翻職聶
C2C0	臍臏舊藏薩藍藐藉薰薺薹薦蟯蟬蟲蟠
C2D0	覆覲觴謨謹謬謫豐贅蹙蹣蹦蹤蹟蹕軀
C2E0	轉轍邇邃邈醫醬釐鎔鎊鎖鎢鎳鎮鎬鎰
C2F0	鎘鎚鎗闔闖闐闕離雜雙雛雞霤鞣鞦

	0123456789ABCDEF
C340	鞭韹額顏題顎顓颺餾餿餽餮馥騎鬁鬃
C350	鬆魏魎魍鯊鯉鯽鯈鯀鵑鵝鵠黠鼕鼬儳
C360	嚥壞壟壢寵龐廬懲懷懶懵攀攏曠曝櫥
C370	櫝櫚櫓瀛瀟瀨瀚瀝瀕瀘爆爍牘犢獸
C380	
C390	
C3A0	獺璽瓊瓣疇疆癟癡矇礙禱穫穩簾簿
C3B0	簸簽簷籀繫繭繹繩繪羅繳羶羹羸臘藩
C3C0	藝藪藕藤藥藷蟻蠅蠍蟹蟾襠襟襖襞譁
C3D0	譜識證譚譎譏譆譙贈贊蹼蹲躇蹶蹬蹺
C3E0	蹴轔轎辭邊邋醱醮鏡鏑鏟鏃鏈鏜鏝鏖
C3F0	鏢鏍鏘鏤鏗鏨關隴難霪霧靡韜韻類

	0123456789ABCDEF
C440	願顛颼饅饉騖騙鬍鯨鯧鯖鯛鶉鵡鵲鵪
C450	鵬麒麗麓麴勸嚨嚷嚶嚴嚼壤孀孃孽寶
C460	巉懸懺攘攔攙曦朧櫬瀾瀰瀲爐獻瓏癢
C470	癥礦礪礬礫竇競籌籃籍糯糰辮繽繼
C480	
C490	
C4A0	纂罌耀臚艦藻藹蘑藺蘆蘋蘇蘊蠔蠕
C4B0	襤覺觸議譬警譯譟譫贏贍躉躁躅躂醴
C4C0	釋鐘鐃鏽闡霰飄饒饑馨騫騰騷騵鰓鰍
C4D0	鹹麵黨鼯齟齣齡儷儸囁囀囂夔屬巍懼
C4E0	懾攝攜斕曩櫻欄櫺殲灌爛犧瓖瓔癩矓
C4F0	籐纏續羼蘗蘭蘚蠣蠢蠡蠟襪襬覽譴

	0123456789ABCDEF
C540	護譽贓躊躍躋轟辯醺鐮鐳鐵鐺鐸鐲鐫
C550	闢霸霹露響顧顥饗驅驃驀騾髏魔魑鰭
C560	鰥鶯鶴鷂鶸麝黯鼙齜齦齧儼儻囈囊囉
C570	孿巔巒彎懿攤權歡灑灘玀瓤疊癮癬
C580	
C590	
C5A0	禳籠籟聾聽臟襲襯觼讀贖贗躑躓轡
C5B0	酈鑄鑑鑒霽霾韃韁顫饕驕驍髒鬚鱉鰱
C5C0	鰾鰻鷓鷗鼴齬齪龔囌巖戀攣攫攪曬欐
C5D0	瓚竊籤籣籥纓纖纔臢蘸蘿蠱變邐邏鑣
C5E0	鑠鑤靨顯饜驚驛驗髓體髑鱔鱗鱖鷥麟
C5F0	黴囑壩攬灞癱癲矗罐羈蠶蠹衢讓讒

	0123456789ABCDEF
C640	讖艷贛釀鑪靂靈靄韆顰驟鬢魘鱟鷹鷺
C650	鹼鹽鼇齷齲廳欖灣籬籮蠻觀躡釁鑲鑰
C660	顱饞髖鬣黌灤矚讚鑷韉驢驥纜讜躪釅
C670	鑽鑾鑼鱷鱸黷豔鑿鸚爨驪鬱鸛鸞籲
C680	
C690	
C6A0	ぁあぃいぅうぇえぉおか
C6B0	がきぎくぐけげこごさざしじすずせ
C6C0	ぜそぞただちぢっつづてでとどなに
C6D0	ぬねのはばぱひびぴふぶぷへべぺほ
C6E0	ぼぽまみむめもゃやゅゆょよらりる
C6F0	れろゎわゐゑをんァアィイゥウェ

	0123456789ABCDEF
C740	エォオカガキギクグケゲコゴサザシ
C750	ジスズセゼソゾタダチヂッツヅテデ
C760	トドナニヌネノハバパヒビピフブプ
C770	ヘベペホボポマミムメモャヤュユ
C780	
C790	
C7A0	ョヨラリルレロヮワヰヱヲンヴヵ
C7B0	ヶДЕЁЖЗИЙКЛМУФХЦЧ
C7C0	ШЩЪЫЬЭЮЯабвгдеёж
C7D0	зийклмнопрстуфхц
C7E0	чшщъыьэюя①②③④⑤⑥⑦
C7F0	⑧⑨⑩⑴⑵⑶⑷⑸⑹⑺⑻⑼⑽

	0123456789ABCDEF
C840	
C850	
C860	
C870	
C880	
C890	
C8A0	
C8B0	
C8C0	
C8D0	
C8E0	
C8F0	

	0123456789ABCDEF
C940	乂乜凵匚厂万丌乇亍囗兀屮彳丏冇与
C950	丮亓仂仉仈冘勼卬厹圠夃夬尐巿旡殳
C960	毌气爿丱丼仨仜仩仡仝仚刌匜卌圢圣
C970	夗夯宁宄尒尻屴屳帄庀庂忉戉扐氕
C980	
C990	
C9A0	氶汃氿氻犮犰玊禸肊阞伎优伬仵伔
C9B0	仱伀价伈伝伂伅伢伓伄仴伒冱刓刉刐
C9C0	劦匢匟卍厊吇囡囟圮圪圴夼妀奼妅奻
C9D0	奾奷奿孖尕尥屼屺屻屾巟幵庄异弚彴
C9E0	忕忔忏扜扞扤扡扦扢扙扠扚扥旯旮朾
C9F0	朹朸朻机朿朼朳氘汆汒汜汏汊汔汋

	0123456789ABCDEF
CA40	汌灱牞犴犵玎甪癿穵网艸艼芀艽艿虍
CA50	襾邙邗邘邛邔阢阤阠阣佖伻佢佉体佤
CA60	伾佧佒佟佁佘伭伳伿佡冏冹刜刞刡刭
CA70	劮匉卣卲厎厏吰吷吪呔呅吙吜吥吘
CA80	
CA90	
CAA0	吽呏呁吨吤呇囮囧囥坁坅坌坉坋坒
CAB0	夆奀妦妘妠妗妎妢妐妏妧妡宎宒尨尪
CAC0	岍岏岈岋岉岒岊岆岓岕巠帊帎庋庉庌
CAD0	庈庍弅弝彸彶忒忑忐忭忨忮忳忡忤忣
CAE0	忺忯忷忻怀忴戺抃抌抎抏抔抇扱扻扺
CAF0	扰抁抈扷扽扲扴攷旰旴旳旲旵杅杇

	0123456789ABCDEF
CB40	杙杕杌杈杝杍杚杋毐氙氚汸汧汫沄沋
CB50	沏汱汯汩沚汭沇沕沜汦汳汥汻沎灴灺
CB60	牣犿犽狃狆狁犺狅玕玗玓玔玒町甹疔
CB70	疕皁礽耴肕肙肐肒肜芐芏芅芎芑芓
CB80	
CB90	
CBA0	芊芃芄豸迉辿邟邡邥邞邧邠阰阨阯
CBB0	阭丳侘佼侅佽侀侇佶佴侉侄佷佌侗佪
CBC0	侚佹侁佸侐侜侔侞侒侂侕佫佮冞冼冾
CBD0	刵刲刳剆刱劼匊匋匼厒厔咇呿咁咑咂
CBE0	咈呫呺呾呥呬呴呦呍呯呡呠咘呣呧呤
CBF0	囷囹坯坲坭坫坱坰坶垀坵坻坳坴坢

	0123456789ABCDEF
CC40	坨坽夌奅妵妺姏姎妲姌姁妶妼姃姖妱
CC50	妽姀姈娑妿孢孥宓宕屄屇岮岤岠岵岯
CC60	岨岬岟岣岭岢岪岧岸岥岶岰岦帗帔帙
CC70	弨弢弣弤彔徂彾彽忞忥怭怦怙怲怋
CC80	
CC90	
CCA0	怴怊怗怳怚怞怬怢怍怐怮怓怑怌怉
CCB0	怜戔戽抭抴拑抾抪抶拊抮抳抯抻抩抰
CCC0	抸攽斨斻昉旼昄昒昈旻昃昋昍昅旽昑
CCD0	昐曶朊枅杬枎枒杶杻枘枆构杴杍枌杺
CCE0	杹枑枙杓杄极杸杫枔欥殀歾毞氝沓泬
CCF0	泫泮泙沶泔沭泧沷泐泂沺泃泆泭泲

	0123456789ABCDEF
CD40	泒泝沴沝沊汿泞河洰泍泇沰泹泏泩泑
CD50	炔炘炅炓炆炄炑炖炂炚炃牪狖狋狘狉
CD60	狜狒狔狚狌狑玤玡玭玦玢玠玬玝瓝瓨
CD70	甿畀甾疌疘皯盳盱盰盵矸矼矹矻矺
CD80	
CD90	
CDA0	矷祂礿秅穸穻竻籵糽耵肏肮肣肸肵
CDB0	肭舠芠苀芫芚芘芛芵芧芮芼芞芺芴芨
CDC0	芡芩苂芤苃芶芢虰虯虭虮豖迒迋迓迍
CDD0	迖迕迗邲邴邯邳邰阹阽阼阺陃俍俅俓
CDE0	侲俉俋俁俔俜俙侻侳俛俇俖侺俀侹俬
CDF0	剄剉勀勂匽卼厗厖厙厘咺咡咭咥哏

	0123456789ABCDEF
CE40	哃茍咷咮哖咶哅哆咠呰咼咢咾呲哞响
CE50	垵垞垟垤垌垗垝垛垔垘垏垙垥垚垕壴
CE60	复奓姡姞姮娀姱姝姺姽姼姶姤姲姷姛
CE70	姩姳姵姠姾娎孨寀屏峐峘峌峗峋峛
CE80	
CE90	
CEA0	峞峚峉峇峊峖峓峔峏峈峆峎峟峸峹
CEB0	帡帢帣帠帤庰庤庢庛庣庥弇弮彖徆怷
CEC0	怹恔恲恞恅恓恇恉恛恌恀恂恟怤恄恘
CED0	恦恮扂扃拏挍挋拵挎挃拫拹挏挌拸拶
CEE0	振挓挔拺挕挀拰敁敃斪斿衵昡昲昵昜
CEF0	昦昢昳昫昺昝昴昹昮朏朐柁柲柈枺

	0123456789ABCDEF
CF40	柜枻柸柘柀枷柅柫柤柟枵柍枳柷柶柮
CF50	柣柂枹柎柧柰臬柼柆柭柌枯柦柛柺柉
CF60	柊柃柪柋欨殂殄殶毖毘毠氠氡洨洴洭
CF70	洟洼洿洒洊泚洳洄洙洺洚洑洀洝浂
CF80	
CF90	
CFA0	洁洘洷洃洏浀洇洠洬洈洢洉洐炷炟
CFB0	炾炱炰炡炴炵炩牁牉牊牬牰牳牮狊狤
CFC0	狨狫狟狪狦狣玅珌珂珈珅玹玶玵玴珫
CFD0	玿珇玾珃珆玸珋瓬瓮甮畇畈疧疪癹盄
CFE0	眈眃眄眅眊盷盻盺矧矨砆砑砒砅砐砏
CFF0	砎砉砃砓祊祌祋祅祄秕种秏秖秎窀

	0123456789ABCDEF
D040	宊竑笀笁籺籸籹籿粀粁紃紈紁罘羑羍
D050	羾耇耎耏耔耷胘胇胠胑胈胂胐胅胣胙
D060	胜朐胕胉胇胗胦胍臿舡芔苙苾苹茇苨
D070	茀苕茺苫苖苴苬苡苲苵茌苻苶苰苪
D080	
D090	
D0A0	苤苠苺苳苭虷虴虼虳衁衎衧衪衩觓
D0B0	訄訇赲迣迡迮迠郱邽邿郕郅邾郇郋郈
D0C0	釔釓陔陏陑陓陊陎倞倅倇倓倢倰倛俵
D0D0	俴倳倷倬俶俷倗倜倠倧倵倯倱倎党冔
D0E0	冓凊凄凅凈凎剡剚剒剞剟剕剢勍匎厞
D0F0	唦哢唗唒哧哳哤唚哿唄唈哫唑唅哱

	0123456789ABCDEF
D140	唊哻哷哸哠唎唃唋圁圂埌堲埕埒垺埆
D150	垽垼垸垶垿埇埐垹埁夎奊娙娖娭娮娕
D160	娏娗娊娞娳孬宧宭宬尃屖屔峬峿峮峱
D170	峷崀峹帩帨庨庮庪庬弳弰彧恝恚恧
D180	
D190	
D1A0	恁悢悈悀悒悁悝悃悕悛悗悇悜悎戙
D1B0	扆拲挐捖挬捄捅挶捃揤挹捋捊挼挩捁
D1C0	挴捘捔捙挭捇挳捚捑挸捗捀捈敊敆旆
D1D0	旃旄旂晊晟晇晑朒朓栟栚桉栲栳栻桋
D1E0	桏栖栱栜栵栫栭栯桎桄栴栝栒栔栦栨
D1F0	栮桍栺栥栠欬欯欭欱欴歭肂殈毦毤

	0123456789ABCDEF
D240	毨毣毢毧氥浺浣浤浶洍浡涒浘浢浭浯
D250	涑涍淯浿涆浞浧浠涗浰浼浟涂涘洯浨
D260	涋浾涀涄洖涃浻浽浵涐烜烓烑烝烋缹
D270	烢烗烒烞烠烔烍烅烆烇烚烎烡牂牸
D280	
D290	
D2A0	牷牶猀狺狴狾狶狳狻猁珓珙珥珖珼
D2B0	珧珣珩珜珒珛珔珝珚珗珘珨瓞瓟瓴瓵
D2C0	甡畛畟疰痁疻痄痀疿疶疺皊盉眝眛眐
D2D0	眓眒眣眑眕眙眚眢眧砣砬砢砵砯砨砮
D2E0	砫砡砩砳砪砱祔祛祏祜祓祒祑秫秬秠
D2F0	秮秭秪秜秞秝窆窉窅窋窌窊窌窇竘笐

	0123456789ABCDEF
D340	笄笓笅笏笈笊笎笉笒粄粑粊粌粈粍粅
D350	紞紝紑紎紘紖紓紟紒紏紌罜罡罞罠罝
D360	罛羖羒翃翂翀耖耾耹胺胲胹胵脁胻脀
D370	舁舯舥茳茭荄茙荑茥荖茿荁茦茜茢
D380	
D390	
D3A0	荂荎茛茪茈茼荍茖茤茠茷茯茩荇荅
D3B0	荌荓茞茬荋茧荈虓虒蚢蚨蚖蚍蚑蚞蚇
D3C0	蚗蚆蚋蚚蚅蚥蚙蚡蚧蚕蚘蚎蚝蚐蚔衃
D3D0	衄衭衵衶衲袀衱衿衯袃衾衴衼訒豇豗
D3E0	豻貤貣赶赸趵趷趶軑軓迾迵适迿迻逄
D3F0	迼迶郖郠郙郚郣郟郥郘郛郗郜郤酐

	0123456789ABCDEF
D440	酎酏釕釢釚陜陟隼飣髟鬯乿偰偪偡偞
D450	偠偓偋偝偲偈偍偁偛偊偢倕偅偟偩偫
D460	偣偤偆偀偮偳偗偑凐剫剭剬剮勖勓匭
D470	厜啵啶唼啍啐唴唪啑啢唶唵唰啒啅
D480	
D490	
D4A0	唌唲啥啎唹啈唭唻啀啋圊圇埻堔埢
D4B0	埶埜埴堀埭埽堈埸堋埳埏堇埮埣埲埥
D4C0	埬埡堎埼堐埧堁堌埱埩埰堍堄奜婠婘
D4D0	婕婧婞娸娵婭婐婟婥婬婓婤婗婃婝婒
D4E0	婄婛婈媎娾婍娹婌婰婩婇婑婖婂婜孲
D4F0	孮寁寀屙崞崋崝崚崠崌崨崍崦崥崏

	0123456789ABCDEF
D540	崰崒崣崟崮帾帴庱庴庹庲庳弶弸徛徖
D550	徟悊悐悆悾悰悺惓惔惏惤惙惝惈悱惛
D560	悷惊悿惃惍惀挲捥掊掂捽掽掞掭掝掗
D570	掫掎捯掇掐据掯捵掜捭掮捼掤挻掟
D580	
D590	
D5A0	捸掅掁掑掍捰敓旍晥晡晛晙晜晢朘
D5B0	桹梇梐梜桭桮梮梫楖桯梣梬梩桵桴梲
D5C0	梏桷梒桼桫桲梪梀桱桾梛梖梋梠梉梤
D5D0	桸桻梑梌梊桽欶欳欷欸殑殏殍殎殌氪
D5E0	淀涫涴涳湴涬淩淢涷淶淔渀淈淠淟淖
D5F0	涾淥淜淝淛淴淊涽淭淰涺淕淂淏淉

	0123456789ABCDEF
D640	淐淲淓淽淗淍淣涻烺焍烷焗烴焌烰焄
D650	烳焐烼烿焆焓焀烸烶焋焂焎牾牻牼牿
D660	猝猗猇猑猘猊猈狿猏猞玈珶珸珵琄琁
D670	珽琇琀珺珼珿琌琋珴琈畤畣痎痒痏
D680	
D690	
D6A0	痋痌痑痐皏皉盓眹眯眭眱眲眴眳眽
D6B0	眥眻眵硈硒硉硍硊硌砦硅硐祤祧祩祪
D6C0	祣祫祡离秺秸秶秷窏窔窐笵筇笴笥笰
D6D0	笢笤笳笘笪笝笱笫笭笯笲笸笚笣粔粘
D6E0	粖粣紵紽紸紶紺絅紬紩絁絇紾紿絊紻
D6F0	紨罣羕羜羝羛翊翋翍翐翑翇翏翉耟

	0123456789ABCDEF
D740	耞耛聇聃聈脘脥脙脛脭脟脬脞脡脕脧
D750	脝脢舑舸舳舺舴舲艴莐莣莨莍荺荳莤
D760	荴莏莁莕莙荵莔莩荽莃莌莝莛莪莋荾
D770	莥莯莈莗莰荿莦莇莮荶莚虙虖蚿蚷
D780	
D790	
D7A0	蛂蛁蛅蚺蚰蛈蚹蚳蚸蛌蚴蚻蚼蛃蚽
D7B0	蚾衒袉袕袨袢袪袚袑袡袟袘袧袙袛袗
D7C0	袤袬袌袓袎覂觖觙觕訰訧訬訞谹谻豜
D7D0	豝豽貥赽赻赹趼跂趹趿跁軘軞軝軜軗
D7E0	軠軡逤逋逑逜逌逡郯郪郰郴郲郳郔郫
D7F0	郬郩酖酘酚酓酕釬釴釱釳釸釤釹釪

	0123456789ABCDEF
D840	釫釷鈃釱鈇閆閈陼陭陫陶陰隿靪頄飥
D850	馗傛傕傔傞傋傆傫傌傎傝傑傜傒傂傪
D860	尯凔剨剫厤厦喑啽喥嗲喞嗚唔喓喈喏
D870	喵喁喣喒喤喨喌喦堪喕喡喎圌堩堷
D880	
D890	
D8A0	堙堞堧堣堨埵塈堥堜堛堳堿堶堮堹
D8B0	堸堭堬堻奡媯媔媟婺媢媞婸媦婼媥媬
D8C0	媕媮娷媄媊媗媃媋媩媻媿媹媜媏媓婺
D8D0	孳寪寋寋寑寊寎尌尰崷嵃嵫嵁嵋嵉崵
D8E0	崹嵎嵕嵛嵓嵀崽崱嵙嵂崹崼嵞崵崲尌
D8F0	嵙嵗幄幁嵬徦徥徫惁惪惷惢惎惄愔

	0123456789ABCDEF
D940	惲愊愖愅惵愓惸惼惾惁愃愘愝愐惿愄
D950	愋扊掔掱掰揎揥揨揯揃撝揳揊揠揶揕
D960	揲揵摡揟掾揝揜揄揘揓揂揇揌揋揈揰
D970	揗揙攲敧敪敤敜敨敥斌斝斞斮旐旒
D980	
D990	
D9A0	晼晬晻暀晱晹晪晲朁椌棓椄棜椪棬
D9B0	棪棱椏棖棷棫棤棶椓椐棳棡椇棌椈楰
D9C0	梴椑棯棆椔棸棐棽棼棨椋椊椗棎棈棝
D9D0	棞棦棴棑椆棔棩椕椥棇欹欻欿欼殔殗
D9E0	殙殝殺毰毼毷氯淼湆湇渟湉湋渼湝湅
D9F0	湢渫渿湁湝湳渜渳湋渲湲湱渵湑湞

	0123456789ABCDEF
DA40	渨湜湡渱渨湠湱湫渹渢渰湓湥渧湸
DA50	湤湷湕湹湒湦渵渶湚焠焞焯烿焨焱焅
DA60	焢焮焟焆焇焋煃焝焥焈焫犉犆猒猋猰
DA70	猢猱猳猧猲猭猦猣猵猌琮琬琰琫琖
DA80	
DA90	
DAA0	琚琡琭琱琤琣琝琩琠琲瓻甯畯畬痧
DAB0	痚痡痦痝痟痤痗皕皒盚睆睇睄睍睅睊
DAC0	睎睋睌矞矬硠硤硥硜硭硱硪确硰硩硨
DAD0	硞硢祴祳祲祰稂稊稃稌稄窙竦竤筊笻
DAE0	筄筈筌筎筀筘筅粢粞粨粡絘絯絣絓絖
DAF0	絧絪絏絭絜絫絒絔絩絑絟絎缾缿罥

	0123456789ABCDEF
DB40	罦羢羠羡翗聑聏聐胾胔腃腊腒腏腇脽
DB50	腍脺臦臮臷臸臹舄舼舽舿艵茻菏菹萣
DB60	菀菨萒菧菤菼菶萐菆菈菫菣莿萁菝菥
DB70	菘菿菡菋菎菖菵菉萉萏菞萑萆菂菳
DB80	
DB90	
DBA0	菕菺菇菑菪萓菃菬菮菄菻菗菢萛菛
DBB0	菾蛘蛢蛦蛓蛣蛚蛪蛝蛫蛜蛬蛩蛗蛨蛑
DBC0	衈衖衕袺裗裋袾袽裀裓袲裌裍裐裑裬
DBD0	覕覘覗觝觚觛詎詍詹詙詀詗詘詄詅詒
DBE0	詈詑詊詌詏豟貁貀貺貾貰貹貵趄趀趉
DBF0	跘跓跍跇跖跜跏跕跙跈跗跅軯軷軺

	0123456789ABCDEF
DC40	軹軦軮軥軵軧軨軶軫軱軬軴軩逭逴逯
DC50	鄆鄬鄄郿郼鄈郹郻鄁鄀鄇鄅鄃酡酤酟
DC60	酢酠鈁鈊鈥鈃鈚鈦鈏鈌鈀鈒釿釽鈆鈄
DC70	鈧鈂鈜鈤鈙鈗鈅鈖镻閍閌閐隇陾隈
DC80	
DC90	
DCA0	隉隃隀雂雈雃雱雰靬靰靮頇颩飫鳦
DCB0	黹亃亄亶傽傿僆傮僄僊傴僈僂傰僁
DCC0	僂僃僉僈僐僗僪僩僔僇僓僕僄僎僦僢
DCD0	嗃嗀嗔嗄嗩喿嗒喍嗏嗕嗢嗖嗈嗲嗍嗙
DCE0	嗂圔塓塨塤塏塍塉塯塕塎塝塙塥塛堽
DCF0	塣塱壼嫇嫄嫋媺媸媱媵媰媿嫈媻嫆

	0123456789ABCDEF
DD40	媷嫀嫊媴媶嫍媹媐寖寘寙尟尳嵱嵣嵊
DD50	嵥嵲嵬嵞嵨嵧嵢巰幏幎幊幍幋廅廌廆
DD60	廋廇彀徯徭惷慉慊愫慅愶愲愮慆愯慏
DD70	愩慀戠酨戣戥戤揅揱揫搐搒搉搠搤
DD80	
DD90	
DDA0	搳摃搟搕搘搹搷搢搣搌搦搰搨摁搵
DDB0	搯搊搚摀搥搧搋揧搛搮搡搎敯斒旓暆
DDC0	暌暕暐暋暊暙暔晸朠楦楟椸楎楢楱椿
DDD0	楅楪椹楂楗楙楺楈楉椵楬椳椽楥棰楸
DDE0	椴楩楀楯楄楶楘楁楴楌椻楋椷楜楏楑
DDF0	椲楒椯楻椼歆歅歃歂歈歁殛嗀毻毼

	0123456789ABCDEF
DE40	毹毷毸溛滖滈溏滀溟溓溔溠溱溹滆滒
DE50	溽滁溞滉溷溰滍溦滏溲溾滃滜滘溙溒
DE60	溎溍溤溡溿溳滐滊溗溮溣煇煔煒煣煠
DE70	煁煝煢煲煸煪煡煂煘煃煋煰煟煐煓
DE80	
DE90	
DEA0	煄煍煚牏犍犌犑犐犎猼獂猻猺獀獊
DEB0	獉瑄玊瑋瑒瑑瑗瑀瑏瑐瑎瑂瑆瑍瑔瓡
DEC0	瓿瓾瓽甝畹畷榃痯瘏瘃痷痾痼瘹痸瘐
DED0	痻痶痭痵痽皙皵盝睕睟睠睒睖睚睩睧
DEE0	睔睙睭矠碇碚碔碏碄碕碅碆碡碃硹碙
DEF0	碀碖硻祼禂祽祹稑稘稙稒稗稕稢稓

	0123456789ABCDEF
DF40	稛稐窣窢窞竫筦筤筭筴筩筲筥筳筱筰
DF50	筡筸筶筣粲粴粯綈綆綀綍絿綅絺綎絻
DF60	綃絼綌綔綄絽綒罭罫罧罨罬羦羥羧翛
DF70	翜耡腤腠腷腜腩腛腢腲朡腞腶腧腯
DF80	
DF90	
DFA0	腄腡舝艉艄艀艂艅蓱萿葖葶葹蒏蒍
DFB0	葥葑葀蒆葧萰葍葽葚葙葴葳葝蔇葞
DFC0	萷萺萴葺葃葸萲葅萩菙葋萯葂萭葟
DFD0	葰萹葎葌葒葯蓅蒎萻葇萶萳葨葾葄
DFE0	葫葠葔葮葐蜋蜄蛷蜌蛺蛖蛵蝍蛸蜎蜉
DFF0	蜁蛶蜍蜅裖裋裍裎裞裛裚裌裐覅覛觟觥觤

	0123456789ABCDEF
E040	觡觠觢觜触訓誆詿詡訿詷誂誄詵誃詌
E050	誚詺詤豋豊豥貇豦貆貄貅賨赨赩赹趌
E060	趎趏趍趓翄趐趒跰跠跬跱跮跐跩跣跢
E070	跧跲跿跴輆軿輁輀輅輇輈輂輋遒遢
E080	
E090	
E0A0	遄遑遖鄐鄍鄠鄑鄓鄔鄹鄎酮酯鉈鉒
E0B0	鈰鈺鉦鈳鉥鉞銃鈮鉊鉆鉭鉬鉏鈌鉧釵
E0C0	鈶鉡鉰鈱鉮鉣鉐鈽鉎鉓鉌鉖鉘閟閜閞
E0D0	閛隒隓隑隗睢雺雽雸雵靳靷靸靲頏頍
E0E0	頎颬飶飹馯馲馰骿骭骫魟鳪鳭鳧麀黽
E0F0	僦僔僗僨僳僛僪僝僤僓僬僰僯僣僠

	0123456789ABCDEF
E140	凘劀劁勩勫匰厬嘧嘕嘌嘒嗼嘏嘜嘁嘓
E150	嘂嘊嘝嘄嘇嗹墉塼墐墘墆墁塿塴墋墍
E160	墇墑墎墌墂墈墄墔墼甀奫嫜嫮嫥嫕嫪
E170	嫚嫭嫫嫳嫢嫠嫛嫬嫞嫝嫙嫨嫟孷寠
E180	
E190	
E1A0	寣屣嶂嶀嵽嶆嵺嶁嵷嶊嶉嶈嵾嶐嶍
E1B0	弽嵿幘幙幓廘廑廗廎廜廕廙廒廔彄彃
E1C0	彯徶愬愨慁慞慱慳慒慓慲慬憀慴慔慺
E1D0	慛慥愻慪慡慖戩戧戫搫摍摛摝摴摶摲
E1E0	摳摽摵摦撦摎撂摞摜摋摓摠摐擓掎摬
E1F0	摫摙摥摷敳斠暡暠暟朅朄朢榱榶槉

	0123456789ABCDEF
E240	榠槎榖榰榬榼榑榙榎榧榍榩榾榯榿槄
E250	榽榤槔榹槊榚槏榳榓榪榡榞槙榗榐槂
E260	榵榥榋歊歍歋殞殟殠毃毄毾滎滵滶漃
E270	漥滸漷滻漮漉潎漙漚漧漘漻漒滭漊
E280	
E290	
E2A0	漶潳滹滮漭潀漰漼漵滫漇漎潃漅滽
E2B0	漖漹漀滉漺漟漍漞漈漡熇熐熉熀熅熂
E2C0	熏煻熆熁熗牄牓犗犕犓獃獍獑獌瑢瑳
E2D0	瑱瑤瑲瑧瑮甀甂甃畽疐瘖瘈瘌瘕瘑瘊
E2E0	瘔皸瞁睼瞅瞂睮睯瞀罯瞃碲碪碴碭碨
E2F0	硾碫碞碥碠碬碢碤禘禊禋禖禕禔禓

	0123456789ABCDEF
E340	禗禈禒禐稫穊稰稯稨稦窨窫窬竮箈箜
E350	箊箑箐箖箍箌箛箎箅箘劄箙箤箂粻粿
E360	粼粺綧綷緂綣綪緁緀緅綝緎緄緆緋緌
E370	綯綹綖綼綟綦綮綩綡緉罳翢翣翥翞
E380	
E390	
E3A0	耤聝聜膉膆膃膇膍膌膋舕蒗蒤蒡蒟
E3B0	蒺蓎蒖蒬蒮蒫蒹蒴蓁蓍蕁蒿蒱蓐蒝蒧
E3C0	蒻蒢蒔蓇蓌蒛蒩蒯蒨蓖蒘蒶蓏蒠蓰蓔
E3D0	蓒蓛蒰蒑虡蜳蜣蜨蝫蝀蜮蜞蜡蜙蜛蝃
E3E0	蜬蝁蜾蝆蜠蜲蜪蜭蜼蜒蜺蜱蜵蝂蜦蜧
E3F0	蜸蜤蜚蜰蜑裷裧裱裲裺裾裮裼裶裻

	0123456789ABCDEF
E440	裰裬裫覝覡覟覞觩觫觨誫誙誋誒誏誖
E450	谽豨豩賕賏賗趖踉踂跿踍跽踊踃踇踆
E460	踅踒踶踄軏輑輎輍鄣鄜鄠鄢鄟鄝鄚鄤
E470	鄡鄛酺酲酹酳銥銤鉶銛鉺銠鉼鋗鋌
E480	
E490	
E4A0	銦銚銫鉹銗鉿銣鋮鋻銂銕銢鉽銈銡
E4B0	銊銆銌銙銧鉾銇銩銝銋鈭隞隡雿靘靽
E4C0	靺靾鞃鞀鞂靻鞄鞁靿韎韍頖颭颮餂餀
E4D0	餇飶飵駃馹駀馺䮝霅駇骱髣髧鬾魀魠
E4E0	魡魟鳵鳸鳲麧僿儃儰僸儆儇僶僾儋儌
E4F0	僽儊劋劌勱勯噈噂噌嘵噁噊噉噆噘

	0123456789ABCDEF
E540	噚噀嘳嘽嘬嘾嘸嘪嘺圚墫墝墱墠墣墯
E550	墬墥墡壿嫿嫴嫽嫷嫶嬃嫸嬂嫹嬁嬇嬅
E560	嬏屧嶙嶗嶟嶒嶢嶓嶕嶠嶜嶡嶚嶞幩幝
E570	幠幜廧廛廞廡彉徲憋憃慹憱憰憢憉
E580	
E590	
E5A0	憛憓憯憭憟憒憪憡憍慦憳戭摮摰撖
E5B0	撠撅撗撜撏撋撊撌撣撟摨撱撘敶敺敹
E5C0	敻斲斳暵暰暩暲暷暪暯樀樆樗槥槸樕
E5D0	槱槤樠槿槬槢樛樝槾樧槲槮樔槷槧橀
E5E0	樈槦槻樍槼樳樉樎樘樥樏槶樦樇樜歈
E5F0	歑殥殣殢殦氁氀毿氂潁漦潾澇濆澒

	0123456789ABCDEF
E640	澍澉澌潢潏澅潚澖潶潬澂潕潲潒潐潗
E650	澔澓潝漀潡潫潽潧澐潓澋潩潿澕潣潷
E660	潪潻熲熯熛熰熠熚熩熵熝熥熞熤熡熪
E670	熜熧熳犘犚獘獒獞獟獠獝獛獡獚獙
E680	
E690	
E6A0	獢璇璉璊璆璁瑽璅璈瑼瑹甈甇畾瘥
E6B0	瘞瘙瘝瘜瘣瘚瘨瘛皜皝皞皛瞍瞏瞉瞈
E6C0	磍碻磏磌磑磎磔磈磃磄磉禚禡禠禜禢
E6D0	禛歶稹窲窴窳箷篋箾箬篎箯箹篊箵糅
E6E0	糈糌糋緷緛緪緧緗緡縃緺緦緶緱緰緮
E6F0	緟罶羬羰羭翭翫翪翬翦翨聤聧膣膟

	0123456789ABCDEF
E740	膞膕膢膙膗舖艏艓艒艐艎艑蔤蔻蔏蔀
E750	蔩蔎蔉蔍蔟蔊蔧蔜蓻蔫蓺蔈蔌蓴蔪蓲
E760	蔕蓷蓫蓳蓼蔒蓪蓩蔖蓾蔨蔝蔮蔂蓽蔞
E770	蓶蔱蔦蓧蓨蓰蓯蓹蔘蔠蔰蔋蔙蔯虢
E780	
E790	
E7A0	蝖蝣蝤蝷蟡蝳蝘蝔蝛蝒蝡蝚蝑蝞蝭
E7B0	蝪蝐蝎蝟蝝蝯蝬蝺蝮蝜蝥蝏蝻蝵蝢蝧
E7C0	蝩衚褅褌褔褋褗褘褙褆褖褑褎褉覢覤
E7D0	覣觭觰觬諏諆諡諓諑諔諕諙諗闇諀誻
E7E0	議諃誺說諎諪諩貏賥賟賙賨賚䝭賧趠
E7F0	趜趡趛踠踣踥踤踮踕踛踖踑踙踦踧

	0123456789ABCDEF
E840	踔踒踘踛踖踸踰輬輤輘輚輠輣輖輗遈
E850	遃遂達遬鄐鄫鄩鄭鄲鄦鄮醅酸醆醊醁
E860	醂醄鋐鋃鋄鋀鋙錸銶鋏鋱鋟鋘鋩鋗鋝
E870	鋌鋯鋂鋨鋊鋈鋎鋦鋍鋕鋉鋠鋞鋧鋑
E880	
E890	
E8A0	鋓鋒鋈鋎閬閫閮閰隤隢雓霅霈霂
E8B0	靚鞊鞎鞈鞐鞇頞頝頦頩頨頠頛頧颲餈
E8C0	飺餑餔餖餗餕駜駍駏駓駔駎駉駖駘駋
E8D0	駗駌骳髬髫髳髲髱魆魃魧魴魱魦魶魵
E8E0	魰魨魤魬鳼鳺鳽鳿鳷鴇鴀鳹鳻鴈鴅鴄
E8F0	麃黓鼏鼐儜儓儗儚儑凞匴叡噰噠噮

	0123456789ABCDEF
E940	噳噦噣噭噲噞噷圜圛壈墽壉墿墺壂墼
E950	壆嬗嬙嬛嬡嬔嬓嬐嬖嬨嬚嬠嬞寯嶬嶱
E960	嶩嶧嶵嶰嶮嶪嶨嶲嶭嶯嶴幧幨幦幯廩
E970	廧廦廨廥彋徼憝憨憖懅憴懆懁懌憺
E980	
E990	
E9A0	憿憸憌擗擖擐擏擉撽撉擃擛擳擙攳
E9B0	敿敼斢曈暾曀曊曋曏暽暻暺曌朣樴橦
E9C0	樉橧樲橨樾橝橭橶橛橑樨橚樻檿橁樳
E9D0	橪橤橐橏橔橯橩橠樼橞橖橕橍橎橆歕
E9E0	歔歖殧殪殫毈毇氄氃氆澭濋澣濇澼濎
E9F0	濈潞濄澽澞濊澨瀄澥澮澺澬澪濏澿

	0123456789ABCDEF
EA40	澢灘澫濃濲濼澰燓燂燒燇燆燀燁燂燔
EA50	燊燇燏燌燘燆燆燚斐犝獇獓獗獊獬獤
EA60	獫獪璔璚璠璯璒璕璡甋瓾瘖瘵瘲瘯瘳
EA70	瘼瘞瘹瘣皻盦瞂瞶瞲瞁瞅瞀瞤瞟瞚
EA80	
EA90	
EAA0	瞍磝磩磥磪磞磣磛磡磢磭磟磠禤穄
EAB0	穈穇窶窸窵窱窷篞篣篧篝篕篥篚篨篹
EAC0	篔篪篢篜篸篘篟糒糔糗糐糑縒縡縗縌
EAD0	縟縠縓縎縜縕縚縢縋縏縖縍縔縥縲罃
EAE0	罻罼罺羱翯耪耩聬膱膦膮膹膵膫膰膬
EAF0	膴膲膷膧臲艕艖艗蕖蕅蕫蕍蕓蕡蕘

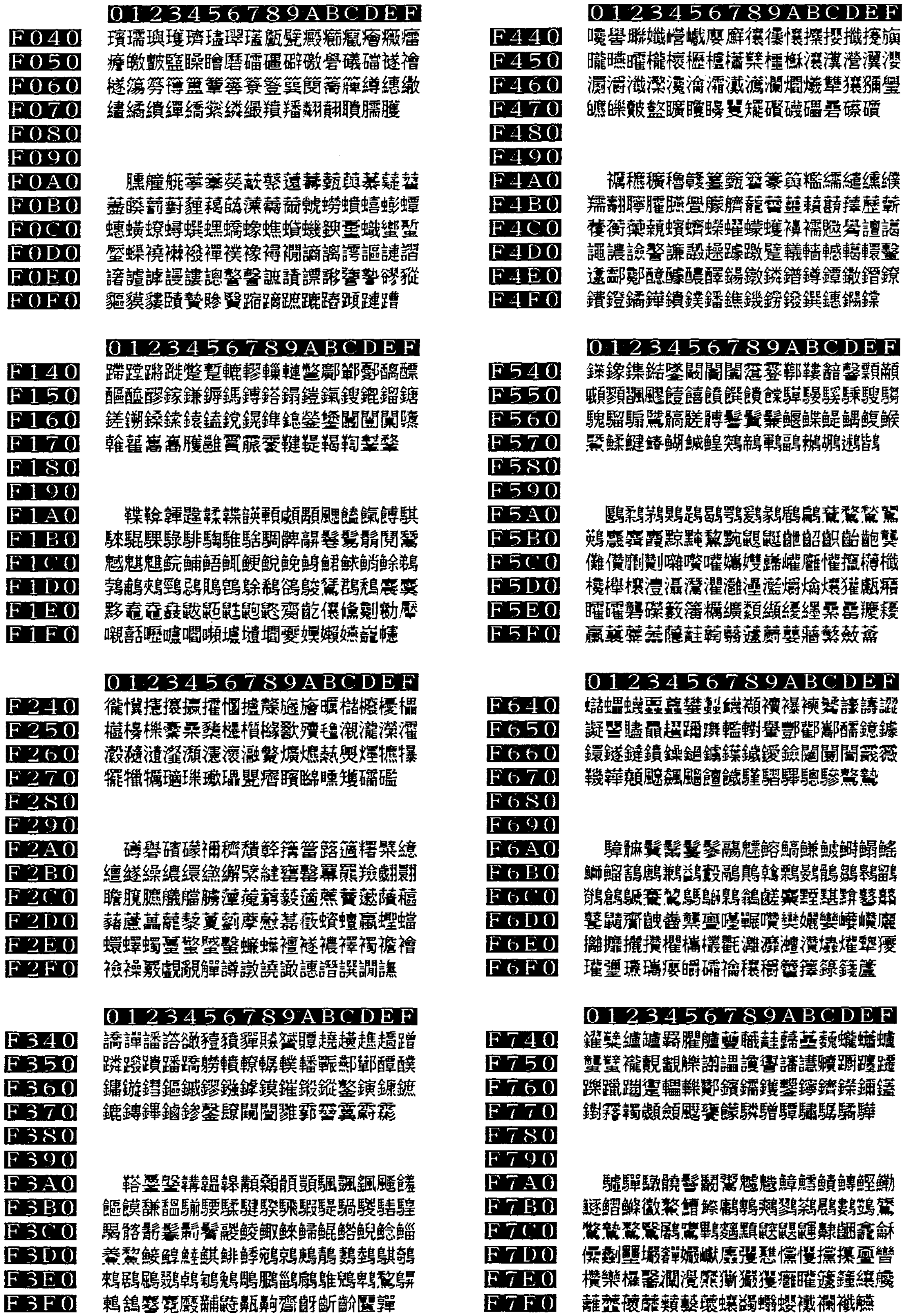
	0123456789ABCDEF
EB40	蕀蕆蕤蕁蕢蕄蕑蕇蕣蔾蕛蕱蕎蕮蕵蕕
EB50	蕧蕠薌蕦蕝蕔蕥蕬虣虥虤螛螏螗螓螒
EB60	螈螁螖螘蝹螇螣螅螐螑螝螄螔螜螚螉
EB70	褞褦褰褭褮褧褱褢褩褣褯褬褟觱諠
EB80	
EB90	
EBA0	諢諲諴諵諝謔諤諟諰諈諞諡諨諿諯
EBB0	諻貑貒貐賵賮賱賰賳赬赮趥趧踳踾踸
EBC0	蹀蹅踶踼踽蹁踰踿躽輶輮輵輲輹輷輴
EBD0	遶遹遻邆郺鄳鄵鄶醓醐醑醍醏錧錞錈
EBE0	錟錆錏鍺錸錼錛錣錒錁錆錭錎錍鋋錝
EBF0	鋺錥錓鋹鋷錴錂錤鋿錩錹錵錪錔錌

	0123456789ABCDEF
EC40	錋鋾錉錀鋻錖閼闍閾閹閺閶閿閵閽隩
EC50	雔霋霒霐鞙鞗鞔靰靸頵頯頲餤餟餧餩
EC60	馞駮駬駥駤駰駣駪駩駧骹骿骴骻髶髺
EC70	髹髷鬳鮀鮅鮇魼魾魻鮂鮓鮒鮐魺鮕
EC80	
EC90	
ECA0	魽鮈鴥鴗鴠鴞鴔鴩鴝鴘鴢鴐鴙鴟麈
ECB0	麆麇麮麭黕黖黺鼒鼽儦儥儢儤儠儩勴
ECC0	嚓嚌嚍嚆嚄嚃噾嚂噿嚁壖壔壏壒嬭嬥
ECD0	嬲嬣嬬嬧嬦嬯嬮孻寱寲嶷幬幪徾徻懃
ECE0	憵憼懧懠懥懤懨懞擯擩擣擫擤擨斁斀
ECF0	斶旚曒檍檖檁檥檉檟檛檡檞檇檓檎

	0123456789ABCDEF
ED40	檕檃檨檤檑橿檦檚檅檌檒歛殭氉濌澩
ED50	濴濔濣濜濭濧濦濞濲濝濢濨燡燱燨燲
ED60	燤燰燢獳獮獯璗璲璫璐璪璭璱璥璯甐
ED70	甑甒甏疄癃癈癉癇皤盩瞵瞫瞲瞷瞶
ED80	
ED90	
EDA0	瞴瞱瞨矰磳磽礂磻磼磲礅磹磾礄禫
EDB0	禨穜穛穖穘穔穚窾竀竁簅簏篲簀篿篻
EDC0	簎篴簋篳簂簉簃簁篸篽簆篰篱簐簊糨
EDD0	縭縼繂縳顈縸縪繉繀繇縩繌縰縻縶繄
EDE0	縺罅罿罾罽翴翲謸臒臐臗臛臜臊臄臇
EDF0	臈臑臏蕶薀薏薍薕薅薋薡薊鎸殤殥

	0123456789ABCDEF
EE40	薱薼薘薺藊薁薦萾藈藯藰薟薶薯薰薷
EE50	薴舋薹薳薰蓬薐薾虧螧螪蟅蟀螼螬螵
EE60	蟔蟒螺螻蝙蟗螯蟄蟊蟘螸聶螫蟄螽蟞
EE70	蟥褵褹褼褾褶褻褳襀覂覯觲觳謞
EE80	
EE90	
EEA0	謘謖謑謅謋謢謏謒謕謇謍謈謆謜謓
EEB0	謚豏豰豲豱豯貕貖賹赯蹎蹍蹓蹐蹌蹇
EEC0	轃轀邅邉鄸醦醧醟醞醩醨醛醠鎑鎽鎯
EED0	鎘鍶鍇鍼鍘鍜鍖鍉鍐鍑鍠鍭鎏鍌鍪鍹
EEE0	鍗鍕鍒鍏鍱鍷鍻鍡鍞鍣鍧鎀鍎鍙闇闀
EEF0	闉闃闅閷隮隰隬霠霟霘霝霙鞚鞡鞜

	0123456789ABCDEF
EF40	鞞鞝韕韔韱顁顄顊顉顅顃餥餫餬餪餳
EF50	餲餯餭餱餰馘馣馡騂駺駴駷駹駸駶駻
EF60	駽駾駼騃骾髾髽鬁髼魈鮚鮨鮞鮛鮦鮡
EF70	鮥鮤鮆鮢鮠鮯鴳鵁鵧鴶鴮鴯鴱鴸鴰
EF80	
EF90	
EFA0	鵅鵂鵃鴾鴷鵀鴽翵鴭麊麉麍麰黈黚
EFB0	黻黿鼤鼣鼢齔龠儱儭儮嚘嚜嚗嚚嚝嚙
EFC0	奰嬼屩屪巀幭幮懘懟懭懮懱懪懰懫懖
EFD0	懩擿攄擽擸攁攃擼斔旛曚曛曘櫅檹檽
EFE0	櫡櫆檺檶檷櫇檴檭歞毉氋瀇瀌瀍瀁瀅
EFF0	瀔瀎濿瀀濻瀦濼濷瀊爁燿燹爃燽獶


0123456789ABCDEF
F040
F050
F060
F070
F080
F090
F0A0
F0B0
F0C0
F0D0
F0E0
F0F0
F140
F150
F160
F170
F180
F190
F1A0
F1B0
F1C0
F1D0
F1E0
F1F0
F240
F250
F260
F270
F280
F290
F2A0
F2B0
F2C0
F2D0
F2E0
F2F0
F340
F350
F360
F370
F380
F390
F3A0
F3B0
F3C0
F3D0
F3E0
F3F0
F440
F450
F460
F470
F480
F490
F4A0
F4B0
F4C0
F4D0
F4E0
F4F0
F540
F550
F560
F570
F580
F590
F5A0
F5B0
F5C0
F5D0
F5E0
F5F0
F640
F650
F660
F670
F680
F690
F6A0
F6B0
F6C0
F6D0
F6E0
F6F0
F740
F750
F760
F770
F780
F790
F7A0
F7B0
F7C0
F7D0
F7E0
F7F0

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
F840	讌	饊	讐	讈	豅	贑	躘	轤	轣	醼	鑢	鑕	鑝	鑗	鑯	韄
F850	韅	頀	驖	驙	鬞	鬟	鬙	鱄	鰣	鱐	鱎	鱍	鱸	鱕	鱙	鱌
F860	鱊	驐	鸋	鶁	鷣	鷫	鷮	鷤	鷶	鷡	鷸	鷦	鼈	鼉	鼊	鷬
F870	鸂	鷳	鞾	鷭	麡	齤	鬖	黳	鼀	鼜	鼟	鼷	鼫	鼸	齋	
F880																
F890																
F8A0		齱	齰	齮	齯	囓	囍	孎	屭	攭	曭	曮	欓	灟	灡	灝
F8B0	灠	爣	瓛	瓥	矕	礸	禷	禶	籪	纗	羉	艭	虃	蠸	蠷	蠵
F8C0	衋	讔	讕	躞	躟	躠	躝	醾	醽	釂	鑫	鑨	鑩	雥	靆	靃
F8D0	靇	韇	韥	驞	髕	鬙	鱣	鱧	鱦	鱢	鱞	鱠	鸂	鷾	鸃	䮾
F8E0	鸆	鸅	鸀	鸁	麷	鼞	鼝	鼜	鼘	鼟	齹	齺	齵	齶	囔	攮
F8F0	斸	欘	欙	欗	欚	灢	爦	欏	曭	矙	礹	籱	贙	纙	纚	

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
F940	纘	蠿	纙	䕼	虋	虆	蘾	讟	襶	襹	襺	襸	膻	讘	讙	躚
F950	躤	躣	鑮	鑭	鑯	鑱	鑳	靉	顲	饟	鱨	鱮	鱭	鸋	鸍	鸐
F960	鸏	鸒	鸑	霋	黵	黿	鼆	齸	齻	齼	齽	囖	灦	籲	蠼	趲
F970	躦	釃	鑴	鑸	鑶	鑵	驠	鱴	鱳	鱱	鱵	鸔	鸓	黶	鼊	
F980																
F990																
F9A0		龤	灨	灥	糷	虪	蠾	蠽	蠿	讞	貜	躩	軉	靋	顳	顴
F9B0	飌	饡	馫	驤	驦	驧	鬤	鸕	鸗	齈	戇	欞	爧	虌	躨	钂
F9C0	钀	钁	驩	驨	鬮	鸙	爩	虋	讟	钃	鱹	麷	癵	驫	鱺	鸝
F9D0	灩	灪	麤	齾	齉	龘										
F9E0																
F9F0																

5-5 Korean Language Codes

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
A1A0			`	°	・	‥	…	¨	〃	-	―	‖	\	～	‘	’
A1B0	“	”	〔	〕	〈	〉	《	》	「	」	『	』	【	】	±	×
A1C0	÷	≒	≤	≥	∞	∴	°	′	″	℃	Å	¢	£	¥	♂	♀
A1D0	∠	⊥	⌒	∂	∇	≡	≒	§	※	☆	★	○	●	◎	◇	◆
A1E0	□	■	△	▲	▽	▼	→	←	↑	↓	↔	=	≪	≫	√	∽
A1F0	∝	∵	∫	∬	∈	∋	⊆	⊇	⊂	⊃	∪	∩	∧	∨	¬	

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
A7A0	㎕	㎖	㎗	ℓ	㎘	㏄	㎣	㎤	㎥	㎦	㎙	㎚	㎛	㎜	㎝	㎞
A7B0	㎟	㎠	㎡	㎢	㏊	㎍	㎎	㎏	㏏	㎈	㎉	㏈	㎧	㎨	㎰	㎱
A7C0	㎲	㎳	㎴	㎵	㎶	㎷	㎸	㎹	㎀	㎁	㎂	㎃	㎄	㎺	㎻	㎼
A7D0	㎽	㎾	㎿	㎐	㎑	㎒	㎓	㎔	Ω	㏀	㏁	㎊	㎋	㎌	㏖	㏅
A7E0	㎭	㎮	㎯	㏛	㎩	㎪	㎫	㎬	㏝	㏐	㏑	㏒	㏕			
A7F0																

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
A2A0		⇒	⇔	∀	∃	´	～	ˇ	˘	˝	˚	˙	¸	˛	¡	¿
A2B0	ː	∮	∑	∏	¤	℉	‰	◁	◀	▷	▶	♤	♠	♡	♥	♧
A2C0	♣	⊙	◈	▣	◐	◑	▒	▤	▥	▨	▧	▦	▩	♨	☏	☎
A2D0	☜	☞	¶	†	‡	↕	↗	↙	↖	↘	♭	♩	♪	♬	㉿	㈜
A2E0	№	㏇	™	㏂	㏘	℡										
A2F0																

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
A8A0		Æ	Ð	ª	Ħ		Ĳ		Ŀ	Ł	Ø	Œ	º	Þ	Ŧ	Ŋ
A8B0		㉠	㉡	㉢	㉣	㉤	㉥	㉦	㉧	㉨	㉩	㉪	㉫	㉬		
A8C0	㉭	㉮	㉯	㉰	㉱	㉲	㉳	㉴	㉵	㉶	㉷	㉸	ⓐ	ⓑ	ⓒ	
A8D0	ⓓ	ⓔ	ⓕ	ⓖ	ⓗ	ⓘ	ⓙ	ⓚ	ⓛ	ⓜ	ⓝ	ⓞ	ⓟ	ⓠ	ⓡ	ⓢ
A8E0	ⓣ	ⓤ	ⓥ	ⓦ	ⓧ	ⓨ	ⓩ	①	②	③	④	⑤	⑥	⑦	⑧	⑨
A8F0	⑩	⑪	⑫	⑬	⑭	⑮	1/2	1/3	2/3	1/4	3/4	1/8	3/8	5/8	7/8	

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
A3A0		!	″	#	$	%	&	'	(	)	*	+	,	-	.	/
A3B0	0	1	2	3	4	5	6	7	8	9	:	;	<	=	>	?
A3C0	@	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
A3D0	P	Q	R	S	T	U	V	W	X	Y	Z	[	₩	]	^	_
A3E0	`	a	b	c	d	e	f	g	h	i	j	k	l	m	n	o
A3F0	p	q	r	s	t	u	v	w	x	y	z	{	|	}	¯	

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
A9A0		æ	đ	ð	ħ	ı	ij	ĸ	ŀ	ł	ø	œ	ß	þ	ŧ	ŋ
A9B0	ŉ	㈀	㈁	㈂	㈃	㈄	㈅	㈆	㈇	㈈	㈉	㈊	㈋	㈌	㈍	㈎
A9C0	㈏	㈐	㈑	㈒	㈓	㈔	㈕	㈖	㈗	㈘	㈙	㈚	(a)	(b)	(c)	
A9D0	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)	(r)	(s)
A9E0	(t)	(u)	(v)	(w)	(x)	(y)	(z)	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
A9F0	(10)	(11)	(12)	(13)	(14)	(15)	¹	²	³	⁴	ⁿ	₁	₂	₃	₄	

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
A4A0		ㄱ	ㄲ	ㄳ	ㄴ	ㄵ	ㄶ	ㄷ	ㄸ	ㄹ	ㄺ	ㄻ	ㄼ	ㄽ	ㄾ	ㄿ
A4B0	ㅀ	ㅁ	ㅂ	ㅃ	ㅄ	ㅅ	ㅆ	ㅇ	ㅈ	ㅉ	ㅊ	ㅋ	ㅌ	ㅍ	ㅎ	ㅏ
A4C0	ㅐ	ㅑ	ㅒ	ㅓ	ㅔ	ㅕ	ㅖ	ㅗ	ㅘ	ㅙ	ㅚ	ㅛ	ㅜ	ㅝ	ㅞ	ㅟ
A4D0	ㅠ	ㅡ	ㅢ	ㅣ	ㅥ	ㅦ	ㅧ	ㅨ	ㅩ	ㅪ	ㅫ	ㅬ	ㅭ	ㅮ	ㅯ	ㅰ
A4E0	ㅱ	ㅲ	ㅳ	ㅴ	ㅵ	ㅶ	ㅷ	ㅸ	ㅹ	ㅺ	ㅻ	ㅼ	ㅽ	ㅾ	ㅿ	ㆀ
A4F0	ㆁ	ㆂ	ㆃ	ㆄ	ㆅ	ㆆ	ㆇ	ㆈ	ㆉ	ㆊ	ㆋ	ㆌ	ㆍ	ㆎ		

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
AAA0		ぁ	あ	ぃ	い	ぅ	う	ぇ	え	ぉ	お	か	が	き	ぎ	く
AAB0	ぐ	け	げ	こ	ご	さ	ざ	し	じ	す	ず	せ	ぜ	そ	ぞ	た
AAC0	だ	ち	ぢ	っ	つ	づ	て	で	と	ど	な	に	ぬ	ね	の	は
AAD0	ば	ぱ	ひ	び	ぴ	ふ	ぶ	ぷ	へ	べ	ぺ	ほ	ぼ	ぽ	ま	み
AAE0	む	め	も	ゃ	や	ゅ	ゆ	ょ	よ	ら	り	る	れ	ろ	ゎ	わ
AAF0	ゐ	ゑ	を	ん												

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
A5A0		i	ii	iii	iv	v	vi	vii	viii	ix	x					
A5B0	Ⅰ	Ⅱ	Ⅲ	Ⅳ	Ⅴ	Ⅵ	Ⅶ	Ⅷ	Ⅸ	Ⅹ						
A5C0		Α	Β	Γ	Δ	Ε	Ζ	Η	Θ	Ι	Κ	Λ	Μ	Ν	Ξ	Ο
A5D0	Π	Ρ	Σ	Τ	Υ	Φ	Χ	Ψ	Ω							
A5E0		α	β	γ	δ	ε	ζ	η	θ	ι	κ	λ	μ	ν	ξ	ο
A5F0	π	ρ	σ	τ	υ	φ	χ	ψ	ω							

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
ABA0		ァ	ア	ィ	イ	ゥ	ウ	ェ	エ	ォ	オ	カ	ガ	キ	ギ	ク
ABB0	グ	ケ	ゲ	コ	ゴ	サ	ザ	シ	ジ	ス	ズ	セ	ゼ	ソ	ゾ	タ
ABC0	ダ	チ	ヂ	ッ	ツ	ヅ	テ	デ	ト	ド	ナ	ニ	ヌ	ネ	ノ	ハ
ABD0	バ	パ	ヒ	ビ	ピ	フ	ブ	プ	ヘ	ベ	ペ	ホ	ボ	ポ	マ	ミ
ABE0	ム	メ	モ	ャ	ヤ	ュ	ユ	ョ	ヨ	ラ	リ	ル	レ	ロ	ヮ	ワ
ABF0	ヰ	ヱ	ヲ	ン	ヴ	カ	ケ									

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
A6A0		─	|	┌	┐	┘	└	├	┬	┤	┴	┼	━	┃	┏	┓
A6B0	┛	┗	┣	┳	┫	┻	╋	┠	┯	┨	┷	┿	┝	┰	┥	┸
A6C0	╂	┒	┑	┚	┙	┖	┕	┎	┍	┞	┟	┡	┢	┧	┦	┪
A6D0	┩	┭	┮	┵	┶	┽	┾	╀	╁	╃	╄	╅	╆	╇	╈	╉
A6E0	╊	┱	┲	┹	┺	╾	╿	╽	╼	╻	╹					
A6F0																

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
ACA0		А	Б	В	Г	Д	Е	Ё	Ж	З	И	Й	К	Л	М	Н
ACB0	О	П	Р	С	Т	У	Ф	Х	Ц	Ч	Ш	Щ	Ъ	Ы	Ь	Э
ACC0	Ю	Я														
ACD0		а	б	в	г	д	е	ё	ж	з	и	й	к	л	м	н
ACE0	о	п	р	с	т	у	ф	х	ц	ч	ш	щ	ъ	ы	ь	э
ACF0	ю	я														

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

	0 1 2 3 4 5 6 7 8 9 A B C D E F
B 3 A 0	끝끼끽낀낄낌낍낏낑나낙낚난날날
B 3 B 0	낡낢남납낫났낭낯낱낱낳내낵낸낼냄
B 3 C 0	냅냇냈냉냐냑냔냘냠냥너넉넋넌널넒
B 3 D 0	넓넘넙넛넜넝넣네넥넨넬넴넵넷넸넹
B 3 E 0	녀녁년녈념녑녔녕녘녜녠노녹논놀놂
B 3 F 0	놈놉놋농높놓놔놘놜놨뇌뇐뇔뇜뇝

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

	0 1 2 3 4 5 6 7 8 9 A B C D E F
B 4 A 0	뇟뇨뇩뇬뇰뇹뇻뇽누눅눈눋눌눔눕
B 4 B 0	눗눙눠눴눼뉘뉜뉠뉨뉩뉴뉵뉼늄늅늉
B 4 C 0	느늑는늘늙늚늠늡능늦능늪늬늰늴니
B 4 D 0	닉닌닐닒님닙닛닝닢다닥닦단닫달닭
B 4 E 0	닮닯닳담답닷닸당닺닻닿대댁댄댈댐
B 4 F 0	댑댓댔댕댜더덕덖던덛덜덞덟덤덥

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

	0 1 2 3 4 5 6 7 8 9 A B C D E F
B 5 A 0	덧덩덫덮데덱덴델뎀뎁뎃뎄뎅뎌뎐
B 5 B 0	뎔뎠뎡뎨뎬도독돈돋돌돎돐돔돕돗동
B 5 C 0	돛돝돠돤돨돼됐되된될됨됩됫됴두둑
B 5 D 0	둔둘둠둡둣둥둬뒀뒈뒝뒤뒨뒬뒵뒷뒹
B 5 E 0	듀듄듈듐듕드득든듣들듦듬듭듯등듸
B 5 F 0	디딕딘딛딜딤딥딧딨딩딪따딱딴딸

	0 1 2 3 4 5 6 7 8 9 A B C D E F
B 0 A 0	가각간갇갈갉갊감갑값갓갔강갖갗
B 0 B 0	같갚갛개객갠갤갬갭갯갰갱갸갹갼걀
B 0 C 0	걋걍걔걘걜거걱건걷걸걺검겁것겄경
B 0 D 0	겆겉겊겋게겐겔겜겝겟겠겡겨격겪견
B 0 E 0	견결겸겹겻겼경곁계곈곌곕곗고곡곤
B 0 F 0	곧골곪곬곯곰곱곳공곶과곽관괄괆

	0 1 2 3 4 5 6 7 8 9 A B C D E F
B 6 A 0	땀땁땃땄땅땋때땍땐땔땜땝땟땠땡
B 6 B 0	떠떡떤떨떪떰떱떳떴떵떻떼떽뗀뗄
B 6 C 0	뗌뗍뗏뗐뗑뗘뗬또똑똔똘똥똬똴뙈뙤
B 6 D 0	뙨뚜뚝뚠뚤뚫뚬뚱뛔뛰뛴뛸뜀뜁뜅뜨
B 6 E 0	뜩뜬뜯뜰뜸뜹뜻띄띈띌띔띕띠띤띨띰
B 6 F 0	띱띳띵라락란랄람랍랏랐랑랒랖랗

	0 1 2 3 4 5 6 7 8 9 A B C D E F
B 1 A 0	괌괍괏광괘괜괠괩괬괭괴괵괸괼굄
B 1 B 0	굅굇굉교굔굘굡굣구국군굳굴굵굶굻
B 1 C 0	굼굽굿궁궂궈궉권궐궜궝궤궷귀귁귄
B 1 D 0	귈귐귑귓규균귤그극근귿글긁금급긋
B 1 E 0	긍긔기긱긴긷길긺김깁깃깅깆깊까깍
B 1 F 0	깎깐깔깖깜깝깟깠깡깥깨깩깬깰깸

	0 1 2 3 4 5 6 7 8 9 A B C D E F
B 7 A 0	래랙랜랠램랩랫랬랭랴략랸럇량러
B 7 B 0	럭런럴럼럽럿렀렁렇레렉렌렐렘렙렛
B 7 C 0	렝려력련렬렴렵렷렸령례롄롑롓로록
B 7 D 0	론롤롬롭롯롱롸롼뢍뢨뢸룀룁룃룟
B 7 E 0	룅료룐룔룝룟룡루룩룬룰룸룹룻룽뤄
B 7 F 0	뤘뤠뤼뢱뤤뢸뤔뤗뤙류륙륜률륨륩

	0 1 2 3 4 5 6 7 8 9 A B C D E F
B 2 A 0	깹깻깼깽꺄꺅꺌꺼꺽꺾껀껄껌껍껏
B 2 B 0	껐껑께껙껜껨껫껭껴껸껼껫껬껼께꼬
B 2 C 0	꼭꼰꼲꼴꼼꼽꼿꽁꽃꽅꽉꽐꽜꽝꽤
B 2 D 0	꽥꽹꾀꾄꾈꾐꾑꾕꾜꾸꾹꾼꿀꿇꿈꿉
B 2 E 0	꿋꿍꿎꿔꿜꿨꿩꿰꿱꿴꿸뀀뀁뀄뀌뀐
B 2 F 0	뀔뀜뀝뀨끄끅끈끊끌끎끓끔끕끗끙

	0 1 2 3 4 5 6 7 8 9 A B C D E F
B 8 A 0	륫륭르륵른를름릅릇릉릊릍릎리릭
B 8 B 0	린릴림립릿링마막만많맏말맑맒맘맙
B 8 C 0	맛망맞맡맣매맥맨맬맴맵맷맸맹맺먀
B 8 D 0	먁먈먕머먹먼멀멂멈멉멋멍멎멓메멕
B 8 E 0	멘멜멤멥멧멨멩며멱면멸몃몄명몇몌
B 8 F 0	모목몫몬몰몲몸몹못몽뫄뫈뫘뫙뫼

	0 1 2 3 4 5 6 7 8 9 A B C D E F
B9A0	뮌뮐뮙뮛뮝묘묜묠묩묫무묵묶문묻
B9B0	물묽묾묿뭇뭉뭍뭏뭐뭔뭘뭡뭣뭬뮈
B9C0	뮌뮐뮤뮨뮬뮴뮷므믄믈믐믓미믹민밀
B9D0	밀밂밈밉밋밌밍및밑바박밖밗반받발
B9E0	밝밟밟밤밥밧방밭배백밴밸뱀뱁뱃뱄
B9F0	뱅뱉뱌뱍뱐뱝버벅번벋벌벎범법벗

	0 1 2 3 4 5 6 7 8 9 A B C D E F
BFA0	에엑엔엘엠엡엣엥여역엮연열엷염엽
BFB0	염엽엾엿였영옅옆옇예옌옐옘옙옛옜
BFC0	오옥온올옭옮옰옳옴옵옷옹옻와왁완
BFD0	왈왐왑왓왔왕왜왝왠왬왯왱외왹왼월
BFE0	욈욉욋욍요욕욘욜욤욥욧용우욱운울
BFF0	욹욺움웁웃웅워웍원월웜웝웠웡웨

	0 1 2 3 4 5 6 7 8 9 A B C D E F
BAA0	벙벚베벡벤벧벨벰벱벳벴벵벼벽변
BAB0	별볍볏볐병볕볘볜보복볶본볼봄봅봇
BAC0	봉봐봔봤뵈뵀뵈뵉뵌뵐뵘뵙뵤뵨부북
BAD0	분붇불붉붊붐붑붓붕붙붚붜붤붰붸뷔
BAE0	뷕뷘뷜뷩뷰뷴뷸뷺뷻뷰브븍븐블븜븝
BAF0	븟비빅빈빌빎빔빕빗빙빚빛빠빡빤

	0 1 2 3 4 5 6 7 8 9 A B C D E F
C0A0	웩웬웰웸웹웽위윅윈월윔윕윗윙유
C0B0	육윤율윰윱윳융윷으윽은을읊음읍읏
C0C0	응읒읓읔읕읖읗의읜월읨읫이익인일
C0D0	읽읾잃임입잇있잉잊잎자작잔잖잘잘
C0E0	잚잠잡잣잤장잦재잭잰잴잼잽잿쟀쟁
C0F0	쟈쟉쟌쟎쟐쟘쟝쟤쟨쟬저적전절젊

	0 1 2 3 4 5 6 7 8 9 A B C D E F
BBA0	빨빪빰빱빳빴빵빻빼빽뺀뺄뺌뺍뺏
BBB0	뺐뺑뺘뺙뺨뻐뻑뻔뻗뻘뻠뻣뻤뻥뻬뼁
BBC0	뼈뼉뼘뼙뼛뼜뼝뽀뽁뽄뽈뽐뽑뽕뾔뾰
BBD0	뿅뿌뿍뿐뿔뿜뿟뿡쀼쀵쁘쁜쁠쁨쁩삐
BBE0	삑삔삘삠삡삣삥사삭삯산삳살삵삶삼
BBF0	삽삿샀상샅새색샌샐샘샙샛샜생샤

	0 1 2 3 4 5 6 7 8 9 A B C D E F
C1A0	점접젓정젖제젝젠젤젬젭젯젱져젼
C1B0	절젊졉졌졍졔조족존졸졺좀좁좃종좇
C1C0	좋좡좍좔좝좟좡좨좼좽죄죈죌죔죕
C1D0	죗죙죠죡죤죵주죽준줄줅줆줌줍줏중
C1E0	줘줬줴쥐쥑쥔쥘쥠쥡쥣쥬쥰쥴쥼즈즉
C1F0	즌즐즘즙즛증지직진짇질짊짐집짓

	0 1 2 3 4 5 6 7 8 9 A B C D E F
BCA0	샤샨샬샴샵샷샹섀섄섈섐섕서석섞
BCB0	섟선섣설섦섧섬섭섯섰성섶세섹센셀
BCC0	셈셉셋셌셍셔셕션셜셤셥셧셨셩셰셴
BCD0	셸셺소속솎손솔솖솜솝솟송솥솨솩솬
BCE0	솰솽쇄쇈쇌쇔쇗쇘쇠쇤쇨쇰쇱쇳쇼쇽
BCF0	숀숄숌숍숏숑수숙순숟술숨숩숫숭

	0 1 2 3 4 5 6 7 8 9 A B C D E F
C2A0	징짖짇짚짜짝짠짢짤짧짬짭짯짰짱
C2B0	째짹짼쨀쨈쨉쨋쨌쨍쨔쨘쨩쩌쩍쩐쩔
C2C0	쩜쩝쩟쩠쩡쩨쪵쪄쪘쪼쪽쪾쫄쫌쫍쫏
C2D0	쫑쫓쫘쫙쫠쫬쫴쬈쬐쬔쬘쬠쬡쭁쭈쭉
C2E0	쭌쭐쭘쭙쭝쭤쭸쭹쮜쮸쯔쯤쯧쯩찌찍
C2F0	찐찔찜찝찡찢찧차착찬찮찰참찹찻

	0 1 2 3 4 5 6 7 8 9 A B C D E F
BDA0	숯숱숲숴숼쉐쉑쉔쉘쉠쉥쉬쉭쉰쉴
BDB0	쉼쉽쉿슁슈슉슐슘슛슝스슥슨슬슭슴
BDC0	습슷승시식신싣실싫심십싯싱싶싸싹
BDD0	싻싼쌀쌈쌉쌌쌍쌓쌔쌕쌘쌜쌤쌥쌨쌩
BDE0	썅써썩썬썰썲썸썹썼썽쎄쎈쎌쎈쏘쏙
BDF0	쏜쏟쏠쏢쏨쏩쏭쏴쏵쏸쐈쐐쐤쐬쐰

	0 1 2 3 4 5 6 7 8 9 A B C D E F
C3A0	찼창찾채책챈챌챔챕챗챘챙챠챤챵
C3B0	챨챰챵처척천철첨첩첫첬청체첵첸첼
C3C0	쳄쳅쳇쳉쳐쳔쳤쳬쳰쳉초촉촌촐촘촙
C3D0	촛총촤촨촬촹최쵠쵤쵬쵭쵯쵱쵸춈추
C3E0	축춘출춤춥춧충춰췄췌췐취췬췰췸췹
C3F0	췻췽츄츈츌츔츙츠측츤츨츰츱츳층

	0 1 2 3 4 5 6 7 8 9 A B C D E F
BEA0	쐴쐼쐽쑈쑤쑥쑨쑬쑴쑵쑹쒀쒔쒜쒸
BEB0	쒼쓩쓰쓱쓴쓸쓺쓿씀씁씌씐씔씜씨씩
BEC0	씬씰씸씹씻씽아악안앉않알앍앎앓암
BED0	압앗았앙앝앞애액앤앨앰앱앳앴앵야
BEE0	약얀얄얇얌얍얏양얕얗얘얜얠얩어억
BEF0	언얹얻얼얽얾엄업없엇었엉엊엌엎

	0 1 2 3 4 5 6 7 8 9 A B C D E F
C4A0	치칙친칟칠칡침칩칫칭카칵칸칼캄
C4B0	캅캇캉캐캑캔캘캠캡캣캤캥캬캭컁커
C4C0	컥컨컫컬컴컵컷컸컹케켁켄켈켐켑켓
C4D0	켕켜켠켤켬켭켯켰켱켸코콕콘콜콩콥
C4E0	콧콩콰콱콴콸쾀쾅쾌쾡쾨쾰쿄쿠쿡쿤
C4F0	쿨쿰쿱쿳쿵숴퀀퀄퀑퀘퀭퀴퀵퀸퀼

	0 1 2 3 4 5 6 7 8 9 A B C D E F
C5A0	퀌퀍퀏퀑큐큔큘큠크큭큰클큼큽킁
C5B0	키킥킨킬킴킵킷킹타탁탄탈탉탐탑탓
C5C0	탔탕태택탠탤탬탭탯탰탱탸탕터턱턴
C5D0	털턺텀텁텃텄텅테텍텐텔템텝텟텡텨
C5E0	텬텼톄톈토톡톤톨톰톱톳통톺톼톤퇘
C5F0	퇴퇸퇫퇭툐투툭툰툴툼툽툿퉁퉈퉜

	0 1 2 3 4 5 6 7 8 9 A B C D E F
CBA0	
CBB0	
CBC0	
CBD0	
CBE0	
CBF0	

	0 1 2 3 4 5 6 7 8 9 A B C D E F
C6A0	퉤튀튁튄튈튐튑튕튜튠튤튬튱트특
C6B0	튼튿틀틂틈틉틋틔틴틸팀팁팃팅파팍팎판팔팖팜팝팟팠팡팥
C6C0	패팩팬팰팸팹팻팼팽퍄퍅퍼퍽펀펄펌
C6D0	펍펏펐펑페펙펜펠펨펩펫펭펴편펼폄
C6E0	폅폈평폐폘폡폣포폭폰폴폼폽폿퐁
C6F0	

	0 1 2 3 4 5 6 7 8 9 A B C D E F
CCA0	
CCB0	
CCC0	
CCD0	
CCE0	
CCF0	

	0 1 2 3 4 5 6 7 8 9 A B C D E F
C7A0	퐈퐝푀푄표푠푤푭푯푸푹푼푿풀풂
C7B0	품풉풋풍풔풩퓌퓐퓔퓜퓟퓨퓬퓰퓸퓻
C7C0	퓽프픈플픔픕픗피픽핀필핌핍핏핑하
C7D0	학한할핥함합핫항해핵핸핼햄햅햇했
C7E0	행햐향허헉헌헐헒험헙헛헝헤헥헨헬
C7F0	헴헵헷헹혀혁현혈혐협혓혔형혜혠

	0 1 2 3 4 5 6 7 8 9 A B C D E F
CDA0	
CDB0	
CDC0	
CDD0	
CDE0	
CDF0	

	0 1 2 3 4 5 6 7 8 9 A B C D E F
C8A0	혤혭호혹혼홀홅홈홉홋홍홑화확환
C8B0	활홧황홰홱홴횃횅회획횐횔횜횟횡효
C8C0	횬횰횹횻후훅훈훌훑훔훗훙훠훤훨훰
C8D0	훵훼훽휀휄휑휘휙휜휠휨휩휫휭휴휵
C8E0	휸휼흄흇흉흐흑흔흖흗흘흙흠흡흣흥
C8F0	흩희흰흴흼흽힁히힉힌힐힘힙힛힝

	0 1 2 3 4 5 6 7 8 9 A B C D E F
CEA0	
CEB0	
CEC0	
CED0	
CEE0	
CEF0	

	0 1 2 3 4 5 6 7 8 9 A B C D E F
C9A0	
C9B0	
C9C0	
C9D0	
C9E0	
C9F0	

	0 1 2 3 4 5 6 7 8 9 A B C D E F
CFA0	
CFB0	
CFC0	
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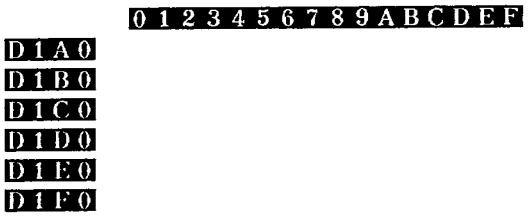
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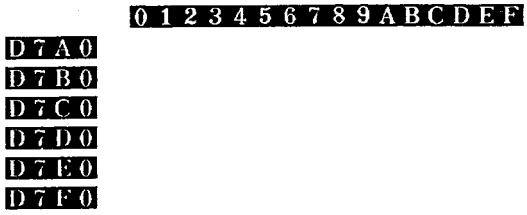
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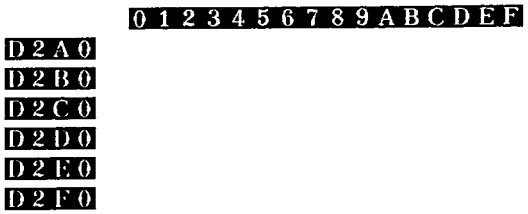
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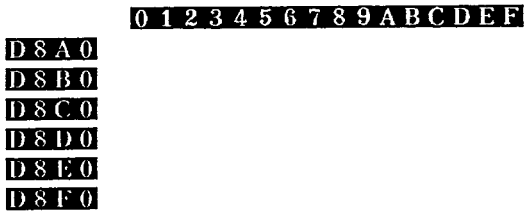
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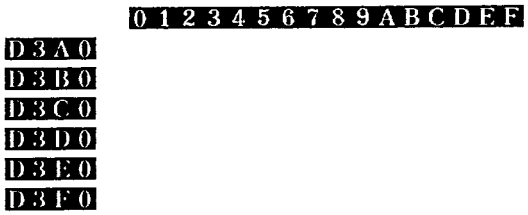
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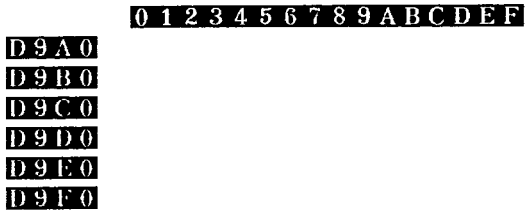
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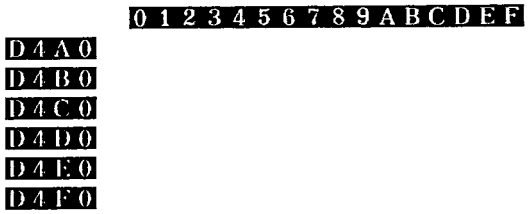
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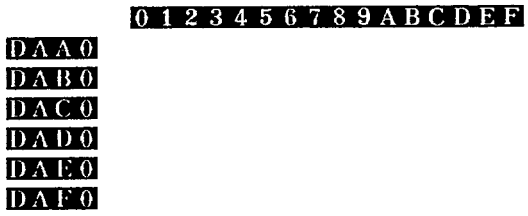
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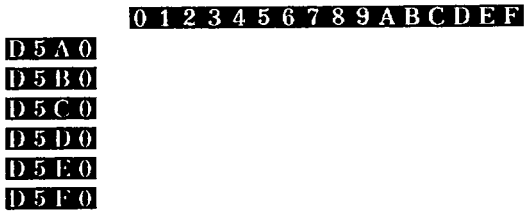
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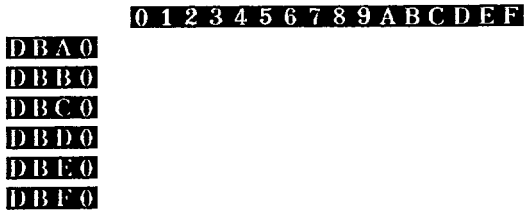
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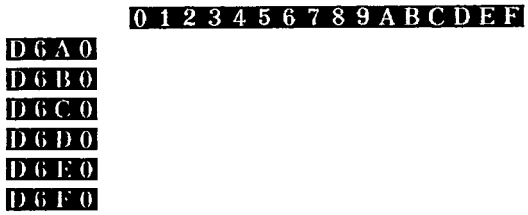
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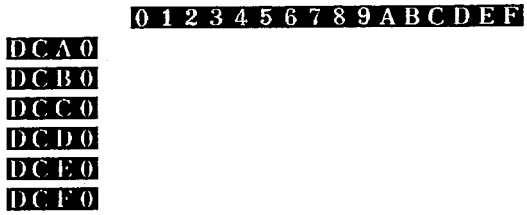
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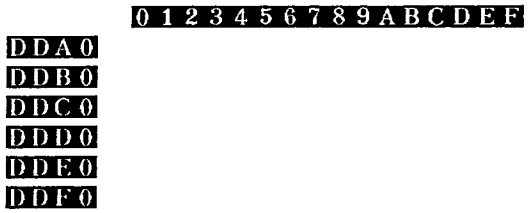
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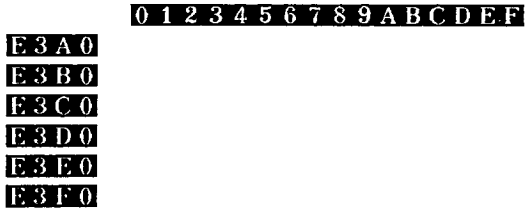
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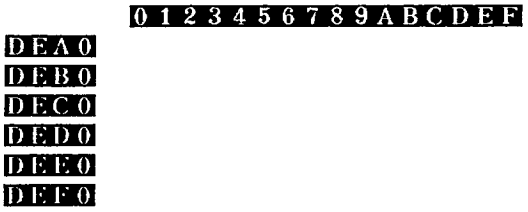
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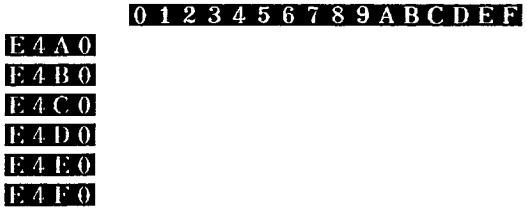
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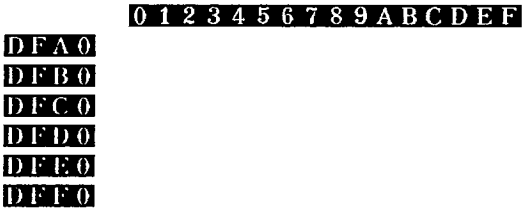
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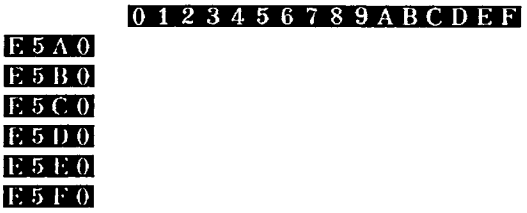
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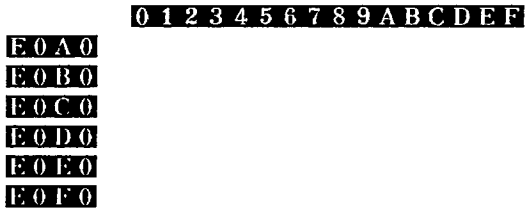
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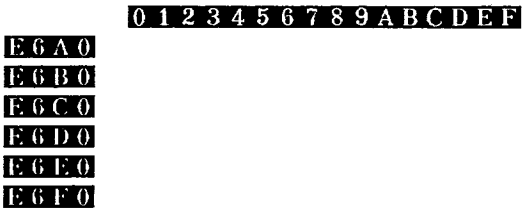
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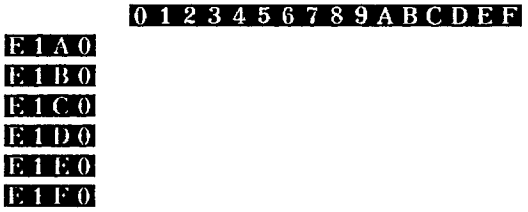
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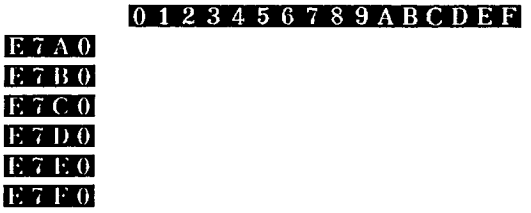
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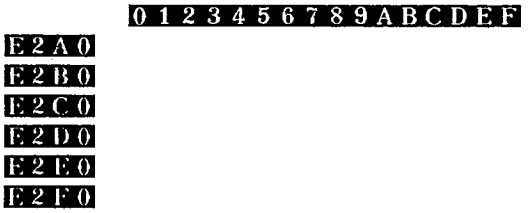
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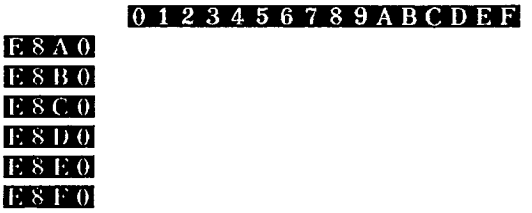
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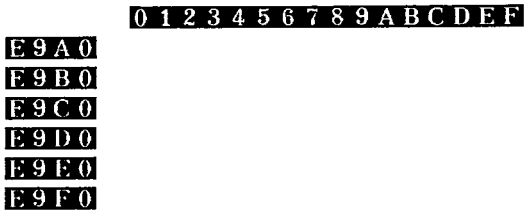
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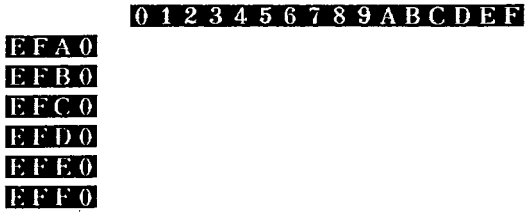
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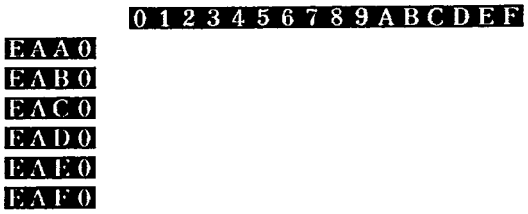
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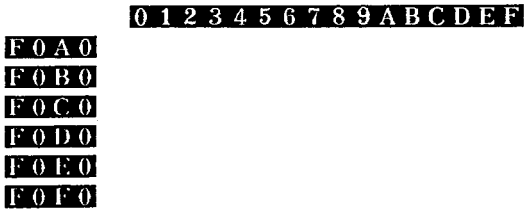
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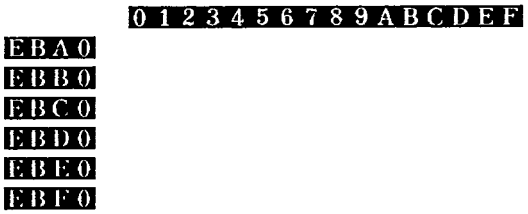
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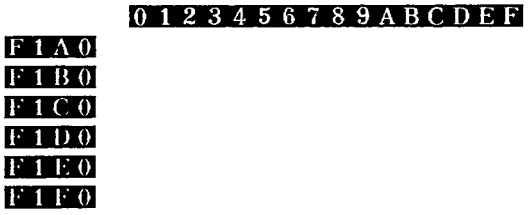
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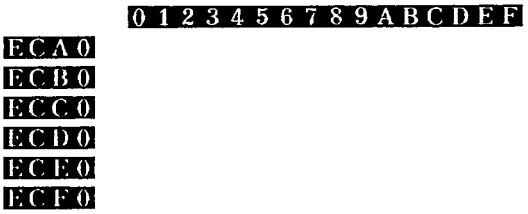
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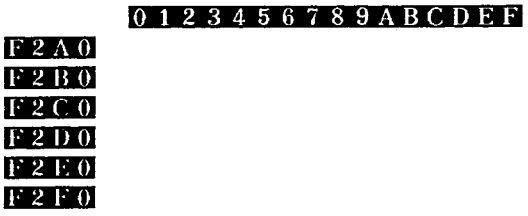
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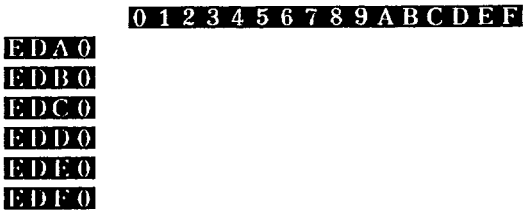
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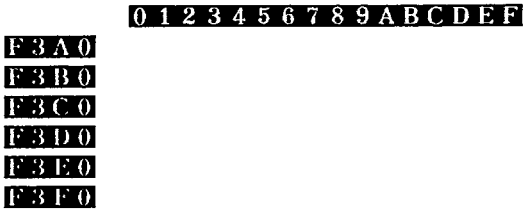
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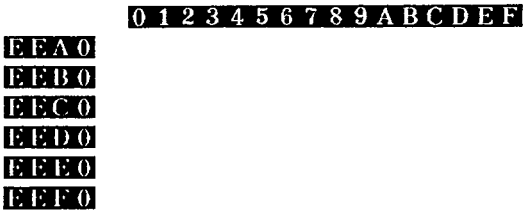
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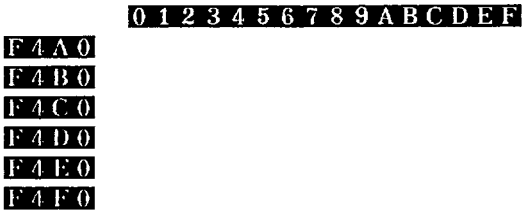
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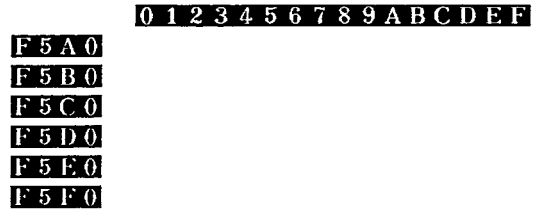
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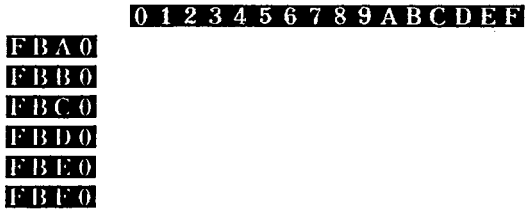
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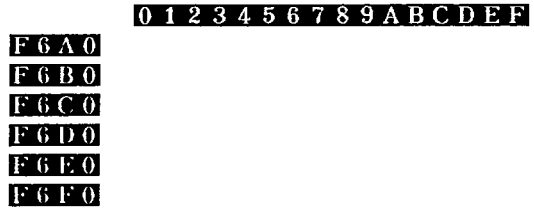
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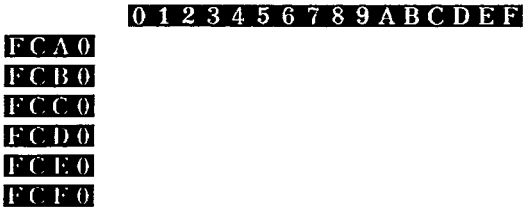
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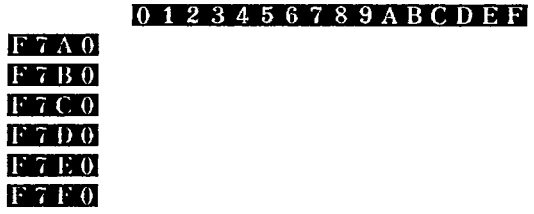
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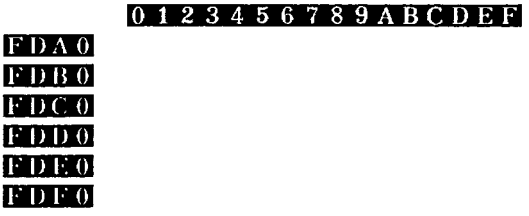
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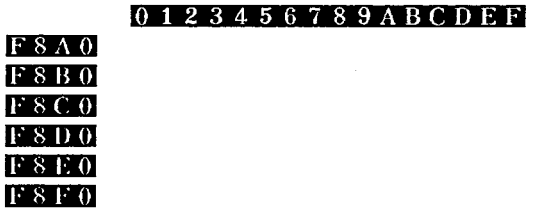
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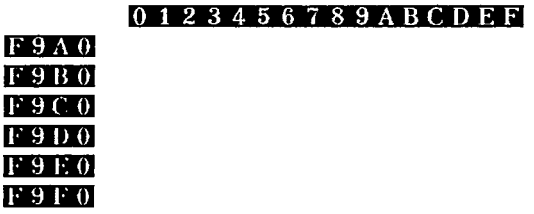
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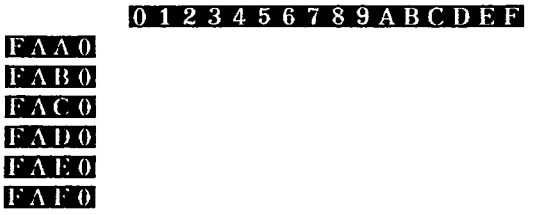
F9E0
F9F0


0 1 2 3 4 5 6 7 8 9 A B C D E F
FAA0
FAB0
FAC0
FAD0
FAE0
FAF0

6. APPENDIX

6-1 Appendix 1 Cautions

<Precautions relating to printing and paper feeds>

(1) This is a line printer. Printing is always accompanied by a paper feed. Therefore, if a value that is smaller than the print data is set for one line of a line feed, paper will be fed more than the set amount to print that data. For example, if one line feed is set to 10 dots (10/180 inches), a paper feed of only 10 dots will occur, but if printing a bit image, paper will be fed 24 dots.

Paper Feed Amount

		Necessary Paper Feed Amount (Dots)
Standard Characters	Font A	24 x Vertical Direction Magnification
	Font B	24 x Vertical Direction Magnification
	Chinese Character Fonts	24 x Vertical Direction Magnification
Rotated Character	Font A	12 x Vertical Direction Magnification
	Font B	9 x Vertical Direction Magnification
	Chinese Character Fonts	24 x Vertical Direction Magnification
Bit Image (ESC *)		24

(2) When the printer enters a data wait state for data from the host, printing and a paper feed is temporarily stopped, but when starting printing with data input, the paper feed can occur between 1 to 3 dots when starting printing. This particularly affects printing of bit images.

(3) The auto-cutter is recommended to after printing more than ten lines or after a paper feed. (If the cut paper is too small, it may not be easy to discharge, or can cause a paper jam.)

6-2 Appendix 2 Status Specifications

6-2-1 Identifying Transmission Status

The status of commands is identifiable because those transmitted by this printer use a dedicated but value. However, if using ASB, the three bytes after confirming the first ASB byte, excluding XOFF, are processed as ASB data. Without this, it is not possible to identify statuses such as GS r (Send status) and statuses after the second byte of an ASB.

Identification of Transmission Status

Command/Functions	Status							
	Bit7	Bit6	Bit5	Bit4	Bit3	Bit2	Bit1	Bit0
GS I	0	*	*	0	*	*	*	*
GS r	0	*	*	0	*	*	*	*
X ON	0	0	0	1	0	0	0	1
X OFF	0	0	0	1	0	0	1	1
DLE EOT	0	*	*	1	*	*	1	0
ASB (1st Byte)	0	*	*	1	*	*	0	0
ASB (2nd to 4th Byte)	0	*	*	0	*	*	*	*

6-2-2 Error Details Per Model

Error		TSP600	TSP700	TSP800	TUP900			
Recoverable Error	Cover Open Error	○	○	○	○			
	Paper out error	○	○	○	○			
	Near-end error	○	○	○	○			
Auto-recovery Error	Heat high temperature error	○	○	○	○			
	Auto-cutter error	○	x	x	x			
Non-recoverable Error	Power voltage error	○	○	○	○			
	Thermistor error	○	○	○	○			
	SRAM error	○	○	○	○			
	FLASH error	○	○	○	○			
	EEPROM error	x	x	○	○			
	Auto-cutter error	x	○	○	○			
	Paper jam at presenter	x	x	x	○			

6-2-3 DLE EOT Status

1. Printer Status (n = 1)

Bit	Contents	Status		Compatibility Per Model						
		"0"	"1"	TSP600	TSP700	TSP800	TUP900			
7	Fixed at "0"			-	-	-	-			
6	Undefined ("0")			-	-	-	-			
5	Undefined ("0")			-	-	-	-			
4	Fixed at "1"			-	-	-	-			
3	ONLINE/OFFLINE Status	ONLINE	OFFLINE	○	○	○	○			
2	Drawer kick connector pin #3	"L"	"H"	○	○	○	x			
	Presenter Cover	Closed	Open	x	x	x	x			
1	Fixed at "1"			-	-	-	-			
0	Fixed at "0"			-	-	-	-			

Bit-2: Drawer kick connector #3 pin status is allocated for models not equipped with a presenter; presenter cover status is allocated to those models equipped with a presenter. TUP900 is provided with a presenter, but this bit is invalid because it does not have a presenter cover.

2. Online Cause Status (n=2)

Bit	Contents	Status		Compatibility Per Model						
		"0"	"1"	TSP600	TSP700	TSP800	TUP900			
7	Fixed at "0"			-	-	-	-			
6	Error	No error	Error	○	○	○	○			
5	Printing stops because of paper out	None	Print stopped	○	○	○	○			
4	Fixed at "1"			-	-	-	-			
3	Paper SW input	No SW Input	SW Input	○	○	○	○			
2	Cover Status	Closed	Open	○	○	○	○			
1	Fixed at "1"			-	-	-	-			
0	Fixed at "0"			-	-	-	-			

Bit-6: Indicates this error is non-recoverable.
Bit-5: Bit-5 = "1" (Print stopped) when printing stops because there is no paper.

3. Error Cause Status (n=3)

Bit	Contents	Status		Compatibility Per Model						
		"0"	"1"	TSP600	TSP700	TSP800	TUP900			
7	Fixed at "0"			-	-	-	-			
6	Auto-recovery Error	No error	Error	○	○	○	○			
5	Non-recoverable Error	No error	Error	○	○	○	○			
4	Fixed at "1"			-	-	-	-			
3	Auto-cutter error	No error	Error	○	○	○	○			
2	Black mark error	No error	Error	○	○	○	x			
	Mechanical Error	No error	Error	x	x	x	○			
1	Fixed at "1"			-	-	-	-			
0	Fixed at "0"			-	-	-	-			

Bit-2: Black mark error status is allocated for models not equipped with a presenter; mechanical error status is allocated to those models equipped with a presenter.
Black mark error status is set only when the black mark is enabled.
A mechanical error on models provided with a presenter represents a paper jam in the presenter and black mark errors.

4. Continuous Paper Detector Status (n = 4)

Bit	Contents	Status		Compatibility Per Model						
		"0"	"1"	TSP600	TSP700	TSP800	TUP900			
7	Fixed at "0"			-	-	-	-			
6	Paper out sensor	Has paper	Paper Out	○	○	○	○			
5	Paper out sensor	Has paper	Paper Out	○	○	○	○			
4	Fixed at "1"			-	-	-	-			
3	Near-end Sensor	Has paper	Paper Out	○	○	○	○			
2	Near-end Sensor	Has paper	Paper Out	○	○	○	○			
	Black mark sensor status	White detection	Black detection	○	○	○	x			
1	Fixed at "1"			-	-	-	-			
0	Fixed at "0"			-	-	-	-			

Bit-2: This bit functions as the status indicating the near end sensor when the black mark is disabled. When using the black mark, it functions as the status to indicate the black mark sensor status.
However, on TUP900, it functions as the status to indicate the near end sensor even when using black marks.

5. Presenter Paper Detector Status (n =5)

Bit	Contents	Status		Compatibility Per Model						
		"0"	"1"	TSP600	TSP700	TSP800	TUP900			
7	Fixed at "0"			-	-	-	-			
6	Undefined ("0")			-	-	-	-			
5	Undefined ("0")			-	-	-	-			
4	Fixed at "1"			-	-	-	-			
3	Presenter paper status	Has paper	Paper Out (Recovered)	x	x	x	○			
2	Undefined ("0")			-	-	-	-			
1	Fixed at "1"			-	-	-	-			
0	Fixed at "0"			-	-	-	-			

6-2-4 ASB Status Specifications

1. First Byte (Printer Information)

Bit	Contents	Status		Targeted Status n					Compatibility Per Model						
		"0"	"1"	Bit7	Bit3	Bit2	Bit1	Bit0	TSP600	TSP700	TSP800	TUP900			
7	Fixed at "0"								-	-	-	-			
6	Paper SW input	No SW Input	SW Input				○		○	○	○	○			
5	Cover Status	Closed	Open				○		○	○	○	○			
4	Fixed at "1"								-	-	-	-			
3	ONLINE/OFFLINE Status	ONLINE	OFFLINE				○		○	○	○	○			
2	Drawer kick connector pin #3	"L"	"H"					○	○	○	○	x			
	Presenter Cover	Closed	Open				○		x	x	x	x			
1	Undefined ("0")								-	-	-	-			
0	Undefined ("0")								-	-	-	-			

Bit-2: Drawer kick connector #3 pin status is allocated for models not equipped with a presenter; presenter cover status is allocated to those models equipped with a presenter. TUP900 is provided with a presenter, but this bit is invalid because it does not have a presenter cover.

2. Second Byte (Error Information)

Bit	Contents	Status		Targeted Status n					Compatibility Per Model						
		"0"	"1"	Bit7	Bit3	Bit2	Bit1	Bit0	TSP600	TSP700	TSP800	TUP900			
7	Fixed at "0"								-	-	-	-			
6	Auto-recovery Error	No error	Error			○			○	○	○	○			
5	Non-recoverable Error	No error	Error			○			○	○	○	○			
4	Fixed at "0"								-	-	-	-			
3	Auto-cutter Error	No error	Error			○			○	○	○	○			
2	Black mark error	No error	Error	○					○	○	○	x			
	Mechanical Error	No error	Error			○			x	x	x	○			
1	Paper SW input	No SW Input	SW Input				○		x	x	x	○			
0	Online recovery wait	No waiting for recovery	Wait for recovery				○		x	x	x	○			

Bit-2: Black mark error status is allocated for models not equipped with a presenter; mechanical error status is allocated to those models equipped with a presenter.
Black mark error status is set only when the black mark is enabled.
A TUP900 mechanical error represents a paper jam in the presenter and black mark errors.

3. Third Byte (Paper Detector Information)

Bit	Contents	Status		Targeted Status n					Compatibility Per Model						
		"0"	"1"	Bit7	Bit3	Bit2	Bit1	Bit0	TSP600	TSP700	TSP800	TUP900			
7	Fixed at "0"								-	-	-	-			
6	Undefined ("0")								-	-	-	-			
5	Undefined ("0")								-	-	-	-			
4	Fixed at "0"								-	-	-	-			
3	Paper out sensor	Has paper	Paper Out		○				○	○	○	○			
2	Paper out sensor	Has paper	Paper Out		○				○	○	○	○			
1	Near-end Sensor	Has paper	Paper Out		○				○	○	○	○			
0	Near-end Sensor	Has paper	Paper Out		○				○	○	○	○			

4. Fourth Byte (Paper Detector Information)

Bit	Contents	Status		Targeted Status n					Compatibility Per Model						
		"0"	"1"	Bit7	Bit3	Bit2	Bit1	Bit0	TSP600	TSP700	TSP800	TUP900			
7	Fixed at "0"								-	-	-	-			
6	Black mark sensor status	White detection	Black detection	○					○	○	○	x			
5	Undefined ("0")								-	-	-	-			
4	Fixed at "0"								-	-	-	-			
3	Undefined ("0")								-	-	-	-			
2	Undefined ("0")								-	-	-	-			
1	Presenter paper status	Has paper	Paper Out (Recovered)		○				x	x	x	○			
0	Undefined ("0")								-	-	-	-			

Bit-6: This bit is set only when black marks are effective.

6-2-5 Printer Status Transmission Specification When Using Ethernet I/F

Transmission of statuses other than STAR ASB was not possible when using Ethernet Ver. 1.0. It is possible to transmit status other than STAR ASB on versions later than Ethernet Ver. 2.0 (printer also supports F/W for Ethernet Ver. 2.0). Refer to the STAR Line Mode Command Specifications manual for details relating to STAR ASB specifications. The following describes printer status transmission specifications when mounted with an Ethernet I/F.

1) Transmission Format

1. When using Ethernet Ver. 1.0
   • When transmitting only STAR ASB:
   STAR ASB (Second Byte Bit 7 = 0)
   • When transmitting printer status other than STAR ASB:
   Cannot transmit printer status other than STAR ASB:

2. When using Ethernet Ver. 2.0
   • When transmitting only STAR ASB:
   STAR ASB (Second Byte Bit 7 = 1) + Length (Length = 0x0000)
   • When transmitting printer status other than STAR ASB:
   STAR ASB (Second Byte Bit 7 = 1) + Length + Status Data

<Length Details>
• 2 byte value indicating status data byte count (0x0000 ≦ Length ≦ 0x0200)
• When the status data is 10 bytes: Length = 0x000a
• Apply Length = 0x0000 to only transmit STAR ASB.
• When STAR ASB Second Byte B-7 is applied with Length, set to Bit-7 = 1

In analysis of printer statuses later than Ethernet Ver. 2.0, the total number of bytes of the ASB according to the STAR ASB First byte is detected, and it is detected whether Length has been applied by the second byte Bit-7 of STAR ASB. Depending on the length, by acquiring subsequent status data byte counts, it is possible to analyze the status.

2) Status Data Transmission Format

Status type + Separator character 1 + Data type + Status length + *Printer status* + Separator character 2

1. Status Type (2byte or 4Byte)
   • First and Second Bytes
   Indicate the cause to generate a printer status.
   - ”00” Reserved
   - “01” to ”09” Reserved
   - ”10” to ”49” Status Original Status Request Command
   - “50” ESC/POS ASB
   - “51” to ”59” ESC/POS Real-time Status Request Command
   - “60” to ”99” ESC/POS Status Request Command
   - “A0” to ”FF” Reserved

   • Third and Fourth Bytes
   When a cause occurs, these indicate the command n parameter.
   If there is no n parameter, the third and fourth bytes can be omitted.
   <Ex.> When n = 0x31 using the ESC SYN 3 n command, the third and fourth bytes are “31.”

2 Separator character 1 (1 Byte)
Sends ":"

3 Data Type (1byte)
Indicates printer status data; sends "B" (binary type).

4 Status Length (2 bytes)
2 byte value indicating printer status byte count.

5 Printer Status (Variable length)
Status sent by printer.
Status differs according to the cause.
See the command causes and automatic status for details on the content of statuses.

6 Separator character 2 (1 Byte)
Sends ";"

3) Status Transmission Specifications List

Status Cause	STAR ASB	Length	Status Data						
			Status Type		Separated Character 1	Data Type	Status Length	Printer Status	Separated Character 2
			First/Second Bytes Cause	Third/Fourth Bytes n Parameter					
ESC/POS ASB Automatic Status	STAR ASB	0x000B	"50"	Omitted	":"	"B"	0x0004	Status	";"
DLE EOT n Printer Status Request	STAR ASB	0x000A	"51"	"01"≦n≦"05"	":"	"B"	0x0001	Status	";"
GS I n Printer ID Request	STAR ASB	0x000A	"61"	"01"≦n≦"03" "31"≦n≦"33"	":"	"B"	0x0001	Status	";"
GS r n Printer Status Request	STAR ASB	0x0008	"62"	"01"≦n≦"02" "31"≦n≦"32"	":"	"B"	0x0001	Status	";"
ESC SYN 3 n Presenter Counter Request	STAR ASB	0x0011	"13"	"00"≦n≦"01" "30"≦n≦"31"	":"	"B"	0x0008	Status	";"

6-3 Appendix-3 Blank Page Configuration

Blank code pages are code tables that are empty from character code 80H to FFH. They can be specified using the command below.

- ESC t n (n = 255)
- ESC GS t n (n=255)

Also, it is possible to write data to the blank code page area using the command below.

- ESC GS = ...

1. Example configuration of Font-A data. (12 x 24 font)

	MSB							LSB
d1								
d3					•	•	•	•
d5			•	•	•	•	•	•
d7			•	•				
d9		•	•					
d11		•	•					
d13		•	•					
d15								
d17								
d19								
d21								•
d23							•	•
d25							•	•
d27						•	•	
d29					•	•	•	
d31				•	•	•		
d33				•	•			
d35			•	•				
d37		•	•	•				
d39		•	•	•	•	•	•	•
d41		•	•	•	•	•	•	•
d43								
d45								
d47								

	MSB							LSB
d2					0	0	0	0
d4					0	0	0	0
d6	•	•			0	0	0	0
d8	•	•			0	0	0	0
d10		•	•		0	0	0	0
d12		•	•		0	0	0	0
d14		•	•		0	0	0	0
d16		•	•		0	0	0	0
d18	•	•			0	0	0	0
d20	•	•			0	0	0	0
d22	•				0	0	0	0
d24					0	0	0	0
d26					0	0	0	0
d28					0	0	0	0
d30					0	0	0	0
d32					0	0	0	0
d34					0	0	0	0
d36					0	0	0	0
d38					0	0	0	0
d40	•	•	•		0	0	0	0
d42	•	•	•		0	0	0	0
d44					0	0	0	0
d46					0	0	0	0
d48					0	0	0	0

2. Example configuration of Font-B data. (9 x 24 font)

	MSB							LSB		MSB							LSB
d1									d2		0	0	0	0	0	0	0
d3				•	•	•			d4		0	0	0	0	0	0	0
d5			•	•	•	•	•		d6		0	0	0	0	0	0	0
d7			•	•		•	•	•	d8		0	0	0	0	0	0	0
d9		•	•				•	•	d10		0	0	0	0	0	0	0
d11		•	•				•	•	d12		0	0	0	0	0	0	0
d13		•	•				•	•	d14		0	0	0	0	0	0	0
d15							•	•	d16		0	0	0	0	0	0	0
d17							•	•	d18		0	0	0	0	0	0	0
d19							•	•	d20		0	0	0	0	0	0	0
d21						•	•	•	d22		0	0	0	0	0	0	0
d23					•	•	•	•	d24		0	0	0	0	0	0	0
d25					•	•	•		d26		0	0	0	0	0	0	0
d27				•	•	•			d28		0	0	0	0	0	0	0
d29			•	•	•				d30		0	0	0	0	0	0	0
d31			•	•					d32		0	0	0	0	0	0	0
d33			•	•					d34		0	0	0	0	0	0	0
d35		•	•	•					d36		0	0	0	0	0	0	0
d37		•	•	•					d38		0	0	0	0	0	0	0
d39		•	•	•	•	•	•	•	d40		0	0	0	0	0	0	0
d41		•	•	•	•	•	•	•	d42		0	0	0	0	0	0	0
d43									d44		0	0	0	0	0	0	0
d45									d46		0	0	0	0	0	0	0
d47									d48		0	0	0	0	0	0	0

6-4 Appendix 4 Standard Mode

EPSON has models that have 180 DPI and 203 DPI print heads. STAR's print head is 203 DPI. Therefore, when targeting models with the EPSON 180 DPI print head, it is necessary to correct the line spacing that will be caused by the difference in the head's print density. Correction is done using the memory switches (Print dot count: ESC/POS Compatible Mode/Max). Setting the memory switches to ESC/POS compatible mode artificially makes the number of dot counts the same as an EPSON printer. However, if the target model has a 203 DPI print head, correction is unnecessary so memory switches for print dot settings are not equipped.

6-4-1 Printing Region

1. TSP600/TSP700

Print Region Initial Values

Print Region Setting (Memory Switch Setting)	Printing Dot Count Setting (Memory Switch Setting)	Initial Value		
		nL	nH	Print region
80mm	ESC/POS Compatible Mode	56	2	71mm
	Max.	128	2	80mm
72mm	ESC/POS Compatible Mode	0	2	64mm
	Max.	64	2	72mm
52.5mm	ESC/POS Compatible Mode	120	1	47mm
	Max.	164	1	52.5mm
50.8mm	ESC/POS Compatible Mode	104	1	45mm
	Max.	150	1	50.8mm

Basic calculated pitch initial value: X=1/180 (inch), Y=1/360 (inch)

2 TSP800

Print Region Initial Values

Print Region Setting (Memory Switch Setting)	Initial Value		
	nL	nH	Print region
104mm	64	3	104mm

Basic calculated pitch initial value: X=1/180 (inch), Y=1/360 (inch)

3 TUP900

Print Region Initial Values

Print Region Setting (Memory Switch Setting)	Initial Value		
	nL	nH	Print region
104mm	64	3	104mm
80mm	128	2	80mm
72mm	64	2	72mm
56mm	192	1	56mm

Basic calculated pitch initial value: X=1/203 (inch), Y=1/203 (inch)

6-4-2 Left Margin

• TSP600/TSP700

Left Margin Initial Value

Print Region Setting (Memory Switch Setting)	Printing Dot Count Setting (Memory Switch Setting)	Initial Value		
		nL	nH	Left Margin
80mm	ESC/POS Compatible Mode	40	0	5mm
	Max.	0	0	0mm
72mm	ESC/POS COMPATIBLE MODE	32	0	4mm
	Max.	0	0	0mm
52.5mm	ESC/POS COMPATIBLE MODE	24	0	3mm
	Max.	0	0	0mm
50.8mm	ESC/POS COMPATIBLE MODE	24	0	3mm
	Max.	0	0	0mm

Basic calculated pitch initial value: X=1/180 (inch), Y=1/360 (inch)

• TSP800

Left Margin Initial Value

Print Region Setting (Memory Switch Setting)	Initial Value		
	nL	nH	Left Margin
104mm	0	0	0mm

Basic calculated pitch initial value: X=1/180 (inch), Y=1/360 (inch)

• TUP900

Left Margin Initial Value

Print Region Setting (Memory Switch Setting)	Initial Value		
	nL	nH	Left Margin
104mm	0	0	0mm
80mm	0	0	0mm
72mm	0	0	0mm
56mm	0	0	0mm

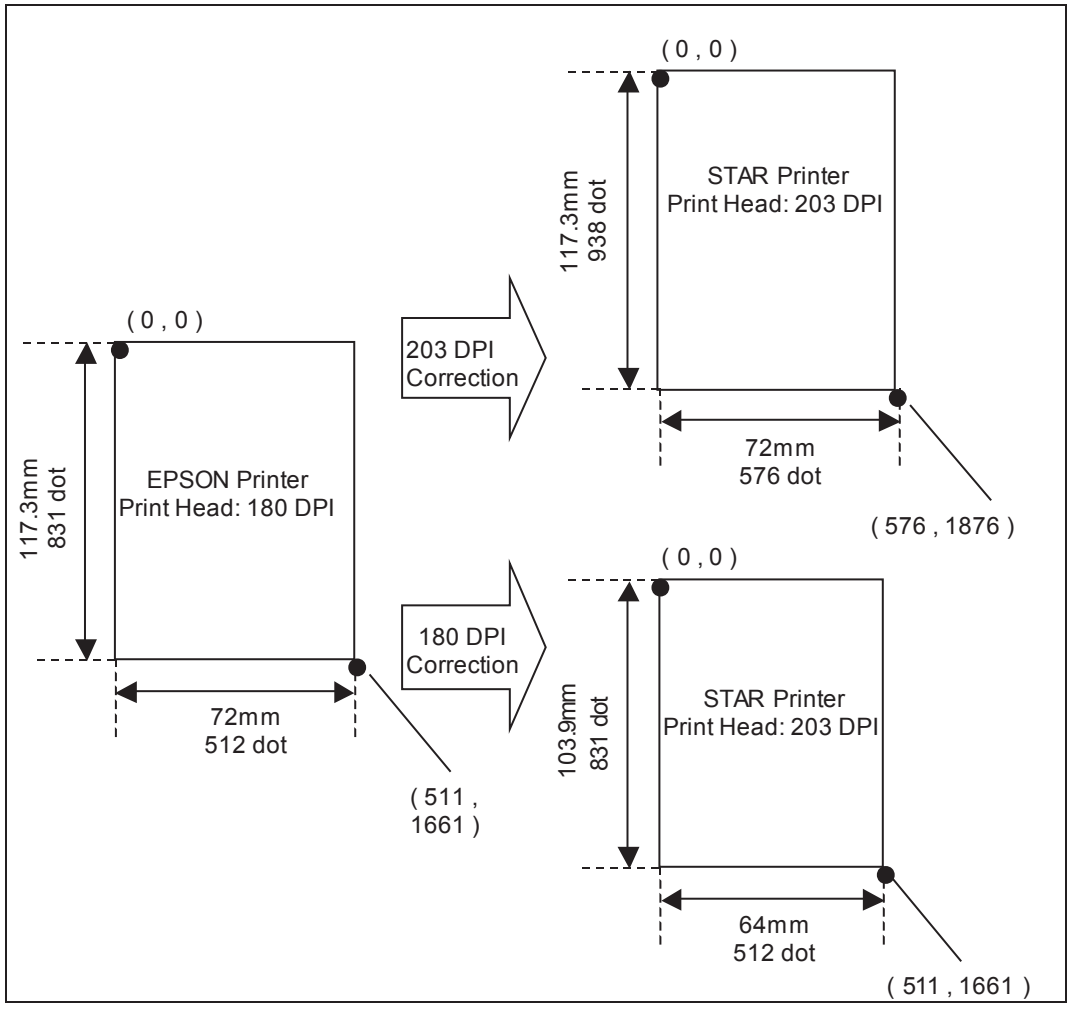
Basic calculated pitch initial value: X=1/203 (inch), Y=1/203 (inch)

6-5 Appendix 5 Page Mode

6-5-1 Page Mode Print Region

EPSON has models that have 180 DPI and 203 DPI print heads. STAR's print head is 203 DPI. Therefore, when targeting models with the EPSON 180 DPI print head, it is necessary to correct the line spacing that will be caused by the difference in the head's print density. Correction is done using the memory switches (Print dot count: ESC/POS Compatible Mode/Max). Setting the memory switches to ESC/POS compatible mode artificially makes the number of dot counts the same as an EPSON printer. The page mode printing region initial value (= maximum value) changes according to the basic calculated pitch correction when the memory switch print dot count in page mode is set to ESC/POS Compatible mode. However, if the target model has a 203 DPI print head, correction is unnecessary so memory switches for print dot settings are not equipped.
The following illustrates the basic calculated pitch correction of the print region in page mode on TSP700.

<Basic calculated pitch correction conceptual view; TSP700; Print dots = ESC/POS compatible mode; Print region setting is 72 mm>



• TSP600/TSP700

Page mode print region initial value (dxL, dxH, dyL, dyH) <Print Dot count: ESC/POS compatible mode>

Print region Setting (Memory Switch Setting)	Basic Calculated Pitch Correction (DIPSW Setting)	Initial Value (= Maximum Value)					
		dxL	dxH	dyL	dyH	Printable Region Width	
						X Dir.	Y Dir.
80mm	203DPI	128	2	84	7	80mm	117.3mm
	180DPI	56	2	126	6	71mm	103.9mm
72mm	203DPI	64	2	84	7	72mm	117.3mm
	180DPI	0	2	126	6	64mm	103.9mm
52.5mm	203DPI	164	1	84	7	52.5mm	117.3mm
	180DPI	120	1	126	6	47mm	103.9mm
50.8mm	203DPI	150	1	84	7	50.8mm	117.3mm
	180DPI	104	1	126	6	45mm	103.9mm

Basic calculated pitch initial value: X=1/180 (inch), Y=1/360 (inch)

Page mode print region initial value (dxL, dxH, dyL, dyH) <Print Dot count: Maximum>

Print region Setting (Memory Switch Setting)	Basic Calculated Pitch Correction (DIPSW Setting)	Initial Value (= Maximum Value)					
		dxL	dxH	dyL	dyH	Printable Region Width	
						X Dir.	Y Dir.
80mm	203/180 DPI	128	2	84	7	80mm	117.3mm
72mm	203/180 DPI	64	2	84	7	72mm	117.3mm
52.5mm	203/180 DPI	164	1	8	7	52.5mm	117.3mm
50.8mm	203/180 DPI	150	1	84	7	50.8mm	117.3mm

Basic calculated pitch initial value: X=1/180 (inch), Y=1/360 (inch)

• TSP800

Page mode print region initial value (dxL, dxH, dyL, dyH)

Print region Setting (Memory Switch Setting)	Basic Calculated Pitch Correction (DIPSW Setting)	Initial Value (= Maximum Value)					
		dxL	dxH	dyL	dyH	Printable Region Width	
						X Dir.	Y Dir.
104mm	203/180 DPI	64	3	128	6	104mm	104mm

Basic calculated pitch initial value: X=1/180 (inch), Y=1/360 (inch)

• TUP900

Page mode print region initial value (dxL, dxH, dyL, dyH)

Print region Setting (Memory Switch Setting)	Basic Calculated Pitch Correction (DIPSW Setting)	Initial Value (= Maximum Value)					
		dxL	dxH	dyL	dyH	Printable Region Width	
						X Dir.	Y Dir.
104mm	203/180 DPI	64	3	96	9	104mm	300mm
80mm	203/180 DPI	128	2	96	9	80mm	300mm
72mm	203/180 DPI	64	2	96	9	72mm	300mm
56mm	203/180 DPI	192	1	96	9	56mm	300mm

Basic calculated pitch initial value: X=1/203 (inch), Y=1/203 (inch)

6-5-2 Usage Example of Page Mode

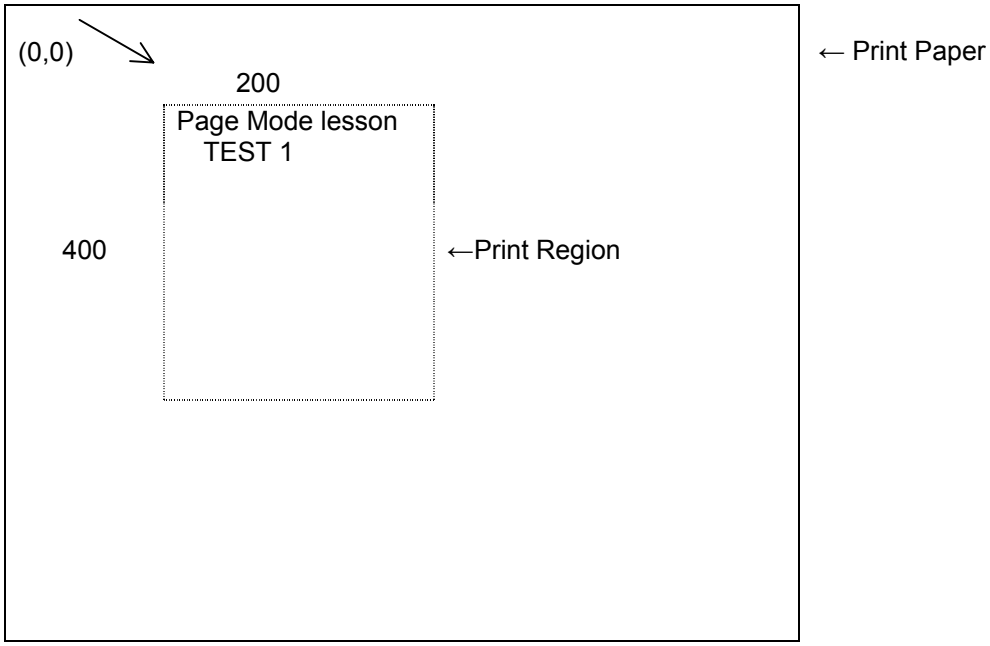
This section provides a detailed description of how to use the page mode.
The following outlines the representative command transmission procedures when using the page mode.

1. Page mode is used by the printer receiving the ESC L (Select page mode) command.
2. The print region is specified by the ESC W (Select print region in page mode) command.
3. The print direction is specified by the ESC T (Select character print direction in page mode) command.
4. Send print data.
5. The printer prints the print data send, using the FF (Print and recover page mode) command.
6. After printing, the printer recovers to standard mode.

<Example 1: Sample Program using Basic>
(It is already possible to send to the printer using file #1 with an OPEN statement.)

```
100  PRINT     #1, CHR$(&H1B); "L";
110  PRINT     #1, CHR$(&H1B); "W"; CHR$(0); CHR$(0); CHR$(0); CHR$(0);
120  PRINT     #1, CHR$(200); CHR$(0); CHR$(144); CHR$(1);
130  PRINT     #1, CHR$(&H1B); "T"; CHR$(0);
140  PRINT     #1, "Page mode lesson TEST 1"
150  PRINT     #1, CHR$(&HC);
```

With the program in example 1, the print region of the size of 200 x 400 pitch is ensured from the origin point (0,0). Printing is performed on that first line.



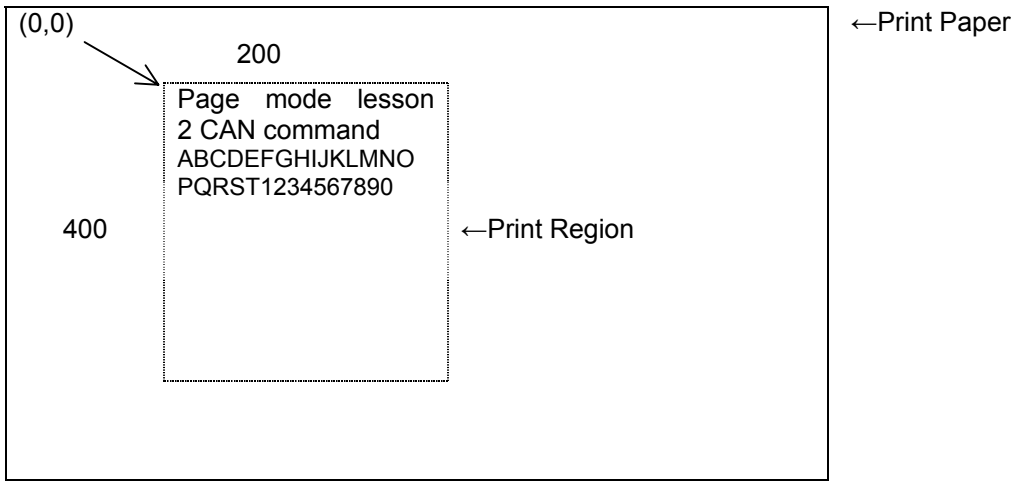
The reason for the line break between lesson and Test 1 in the figure above is because it was automatically inserted due to the fact that a space could not be inserted after lesson in the horizontal direction in the print range of 200 x 400 pitch. This line feed amount is a value specified by ESC 3 (Set line feed amount). Also, several print regions can be set until FF is executed. However, when print regions are overlapped, an OR operation is used for data that is newly written and data that was already written.

To delete only a portion of the buffered data, use the CAN (Cancel print data in page mode) command. CAN deletes all data in the print region currently specified. Therefore, specify the print region that encloses the portion to delete using ESC W, then use the CAN command to delete that data.
However, be careful because the portion in the specified print region, even if a portion of the characters, will be deleted.

<Example 2: Sample Program using Basic>

```
100     PRINT   #1, CHR$(&H1B); "L";
110     PRINT   #1, CHR$(&H1B); "W"; CHR$(0); CHR$(0); CHR$(0); CHR$(0);
120     PRINT   #1, CHR$(200); CHR$(0); CHR$(144); CHR$(1);
130     PRINT   #1, CHR$(&H1B); "T"; CHR$(0);
140     PRINT   #1, "Page mode lesson 2 CAN command"
150     PRINT   #1, CHR$(&HA);
160     PRINT   #1, "ABCDEFGHIJKLMNOPQRST1234567890"
170     PRINT   #1, CHR$(&HC);
```

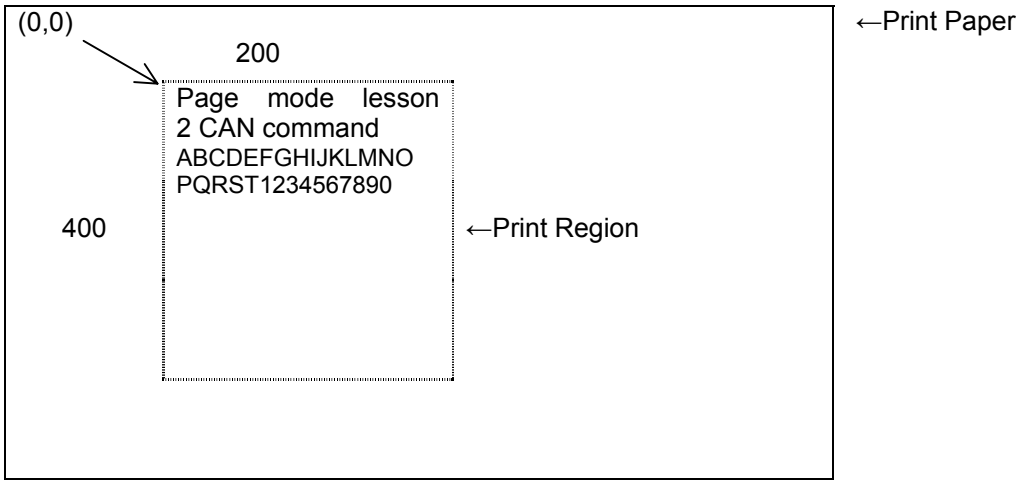
Initially, send ESC L to switch to page mode (line number 100). Next, use ESC W to send eight arguments from xL to dyH to ensure the print region. In this example, to ensure a printer region of the size of 200 in the x direction and 400 in the y direction from the origin (0,0), send arguments in the order of 0,0,0,0,200,0,144,1. (Line numbers 110 to 120) Also, specify using ESC T. Specify the print direction with 0. (Line number 130) These settings send the print data "Page mode lesson 2 CAN command" and "ABCDEFGHIJKLMNOPQRST1234567890" (line numbers 140 to 160). By sending FF, (line number 170), the following will be printed.



It is possible to delete a portion of the data by adding the next program before sending FF.

```
170     PRINT   #1, CHR$(&H1B); "W"; CHR$(72); CHR$(0); CHR$(120); CHR$(0);
180     PRINT   #1, CHR$(36); CHR$(0); CHR$(48); CHR$(0);
190     PRINT   #1, CHR$(&H18);
200     PRINT   #1, CHR$(&HC);
```

The character string GHI, in the figure below, is deleted as a result of adding the program above. Also, if deleting using the CAN command, a space is used without filling the deleted portion.



6-6 Appendix 6 CODE 128 Bar Codes

6-6-1 General Description of CODE 128 Bar Codes

With CODE 128 bar codes, it is possible to express one character of full ASCII128 character groups or two digits numbers with one bar code character by combining 103 bar code types and three types of code sets.

- Code Set A Expresses ASCII characters of 00H to 5FH
- Code Set B Expresses ASCII characters of 20H to 7FH
- Code Set C Expresses two-digit numbers with one character (100 types of 00 to 99)

Also in CODE 128, the following special characters are available.

- Shift characters (SHIFT)
  In code set A, 1 character immediately after a shift is handled as a character from code set B.
  In code set B, 1 character immediately after is handled as a character from code set A.
  Note that this is not used with code set C.
- Code set selection characters (Code A, Code B, Code C)
  Switches the following code set to A, B or C.
- Function characters (FNC1, FNC2, FNC3, FNC4)
  The use of function keys depends on the application. Note that only FNC1 is used with code set C.

6-6-2 Code Tables

1. Characters printable with code set A

Character	Transmission Data		Character	Transmission Data		Character	Transmission Data	
	Hex.	Decimal		Hex.	Decimal		Hex.	Decimal
NUL	00	0	(	28	40	P	50	80
SOH	01	1	)	29	41	Q	51	81
STX	02	2	*	2A	42	R	52	82
ETX	03	3	+	2B	43	S	53	83
EOT	04	4	,	2C	44	T	54	84
ENQ	05	5	-	2D	45	U	55	85
ACK	06	6	.	2E	46	V	56	86
BEL	07	7	/	2F	47	W	57	87
BS	08	8	0	30	48	X	58	88
HT	09	9	1	31	49	Y	59	89
LF	0A	10	2	32	50	Z	5A	90
VT	0B	11	3	33	51	[	5B	91
FF	0C	12	4	34	52	\	5C	92
CR	0D	13	5	35	53	]	5D	93
SO	0E	14	6	36	54	^	5E	94
SI	0F	15	7	37	55	_	5F	95
DLE	10	16	8	38	56	FNC1	7B,31	123,49
DC1	11	17	9	39	57	FNC2	7B,32	123,50
DC2	12	18	:	3A	58	FNC3	7B,33	123,51
DC3	13	19	;	3B	59	FNC4	7B,34	123,52
DC4	14	20	<	3C	60	SHIFT	7B,35	123,53
NAK	15	21	=	3D	61	CODE B	7B,42	123,66
SYN	16	22	>	3E	62	CODE C	7B,43	123,67
ETB	17	23	?	3F	63			
CAN	18	24	@	40	64			
EM	19	25	A	41	65			
SUB	1A	26	B	42	66			
ESC	1B	27	C	43	67			
FS	1C	28	D	44	68			
GS	1D	29	E	45	69			
RS	1E	30	F	46	70			
US	1F	31	G	47	71			
SP	20	32	H	48	72			
!	21	33	I	49	73			
"	22	34	J	4A	74			
#	23	35	K	4B	75			
$	24	36	L	4C	76			
%	25	37	M	4D	77			
&	26	38	N	4E	78			
'	27	39	O	4F	79			

2. Characters printable with code set B

Character	Transmission Data		Character	Transmission Data		Character	Transmission Data	
	Hex.	Decimal		Hex.	Decimal		Hex.	Decimal
SP	20	32	H	48	72	p	70	112
!	21	33	I	49	73	q	71	113
"	22	34	J	4A	74	r	72	114
#	23	35	K	4B	75	s	73	115
$	24	36	L	4C	76	t	74	116
%	25	37	M	4D	77	u	75	117
&	26	38	N	4E	78	v	76	118
'	27	39	O	4F	79	w	77	119
(	28	40	P	50	80	x	78	120
)	29	41	Q	51	81	y	79	121
*	2A	42	R	52	82	z	7A	122
+	2B	43	S	53	83	{	7B,7B	123
,	2C	44	T	54	84	|	7C	124
-	2D	45	U	55	85	}	7D	125
.	2E	46	V	56	86	to	7E	126
/	2F	47	W	57	87	DEL	7F	127
0	30	48	X	58	88	FNC1	7B,31	123,49
1	31	49	Y	59	89	FNC2	7B,32	123,50
2	32	50	Z	5A	90	FNC3	7B,33	123,51
3	33	51	[	5B	91	FNC4	7B,34	123,52
4	34	52	\	5C	92	SHIFT	7B,35	123,53
5	35	53	]	5D	93	CODE A	7B,41	123,65
6	36	54	^	5E	94	CODE B	7B,43	123,67
7	37	55	_	5F	95			
8	38	56	`	60	96			
9	39	57	a	61	97			
:	3A	58	b	62	98			
;	3B	59	c	63	99			
<	3C	60	d	64	100			
=	3D	61	e	65	101			
>	3E	62	f	66	102			
?	3F	63	g	67	103			
@	40	64	h	68	104			
A	41	65	i	69	105			
B	42	66	j	6A	106			
C	43	67	k	6B	107			
D	44	68	l	6C	108			
E	45	69	m	6D	109			
F	46	70	n	6E	110			
G	47	71	o	6F	111			

3. Characters printable with code set C

Character	Transmission Data		Character	Transmission Data		Character	Transmission Data	
	Hex.	Decimal		Hex.	Decimal		Hex.	Decimal
00	00	0	40	28	40	80	50	80
01	01	1	41	29	41	81	51	81
02	02	2	42	2A	42	82	52	82
03	03	3	43	2B	43	83	53	83
04	04	4	44	2C	44	84	54	84
05	05	5	45	2D	45	85	55	85
06	06	6	46	2E	46	86	56	86
07	07	7	47	2F	47	87	57	87
08	08	8	48	30	48	88	58	88
09	09	9	49	31	49	89	59	89
10	0A	10	50	32	50	90	5A	90
11	0B	11	51	33	51	91	5B	91
12	0C	12	52	34	52	92	5C	92
13	0D	13	53	35	53	93	5D	93
14	0E	14	54	36	54	94	5E	94
15	0F	15	55	37	55	95	5F	95
16	10	16	56	38	56	96	60	96
17	11	17	57	39	57	97	61	97
18	12	18	58	3A	58	98	62	98
19	13	19	59	3B	59	99	63	99
20	14	20	60	3C	60	FNC1	7B,31	123,49
21	15	21	61	3D	61	CODE A	7B,41	123,65
22	16	22	62	3E	62	CODE B	7B,42	123,66
23	17	23	63	3F	63			
24	18	24	64	40	64			
25	19	25	65	41	65			
26	1A	26	66	42	66			
27	1B	27	67	43	67			
28	1C	28	68	44	68			
29	1D	29	69	45	69			
30	1E	30	70	46	70			
31	1F	31	71	47	71			
32	20	32	72	48	72			
33	21	33	73	49	73			
34	22	34	74	4A	74			
35	23	35	75	4B	75			
36	24	36	76	4C	76			
37	25	37	77	4D	77			
38	26	38	78	4E	78			
39	27	39	79	4F	79			

APPENDIX COMMAND LIST BY MODEL

7-1 RS-232C Interface

• Standard Commands

Commands	Model Name							
	TSP700	TSP600	TSP800	TUP900				
HT	○	○	○	○				
LF	○	○	○	○				
FF	○	○	○	○				
CR	x	x	x	x				
CAN	○	○	○	○				
DLE EOT	1. Spec.	1. Spec.	1. Spec.	2. Spec.				
DLE ENQ	x	○	x	x				
DLE DC4	○	○	○	x				
ESC FF	○	○	○	○				
ESC SP	○	○	○	○				
ESC !	○	○	○	○				
ESC $	○	○	○	○				
ESC %	○	○	○	○				
ESC &	○	○	○	○				
ESC *	○	○	○	○				
ESC -	○	○	○	○				
ESC 2	○	○	○	○				
ESC 3	○	○	○	○				
ESC =	○	○	○	○				
ESC ?	○	○	○	○				
ESC @	○	○	○	○				
ESC D	○	○	○	○				
ESC E	○	○	○	○				
ESC G	○	○	○	○				
ESC J	○	○	○	○				
ESC L	○	○	○	○				
ESC M	○	○	○	○				
ESC R	○	○	○	○				
ESC S	○	○	○	○				
ESC T	○	○	○	○				
ESC V	○	○	○	○				
ESC W	○	○	○	○				
ESC \	○	○	○	○				
ESC a	○	○	○	○				
ESC c 3	Ver 4.0 to 2 (A) Spec.	Ver 4.0 to 2 (A) Spec.	Ver 5.0 to 2 (A) Spec.	2 (B) Spec.				
ESC c 4	○	○	○	○				
ESC c 5	○	○	○	○				
ESC d	○	○	○	○				
ESC p	○	○	○	x				
ESC t	○	○	○	○				
ESC {	○	○	○	○				
FS g 1	x	x	x	X				
FS g 2	x	x	x	X				
FS p	○	○	○	○				
FS q	○	○	○	○				
GS !	○	○	○	○				
GS $	○	○	○	○				
GS *	○	○	○	○				
GS (A	○	○	○	○				
GS (K	x	x	x	○				
GS (N	x	x	x	○				
GS /	○	○	○	○				
GS :	○	○	○	○				
GS B	○	○	○	○				
GS C 0	x	x	x	○				
GS C 1	x	x	x	○				
GS C 2	x	x	x	○				
GS C ;	x	x	x	○				
GS E	x	x	x	○				
GS H	○	○	○	○				
GS I	○	○	○	○				
GS L	○	○	○	○				
GS P	○	○	○	x				
GS T	x	x	x	○				
GS V	○	○	○	○				
GS W	○	○	○	○				
GS \	○	○	○	○				
GS ^	○	○	○	○				

Commands	Model Name							
	TSP700	TSP600	TSP800	TUP900				
GS a	○	○	○	○				
GS b	x	x	x	x				
GS c	x	x	x	○				
GS f	○	○	○	○				
GS h	○	○	○	○				
GS k	○	○	○	○				
GS r	○	○	○	○				
GS v 0	○	○	○	○				
GS w	○	○	○	○				

• Kanji Control Commands (DBCS Settings, Kanji Specifications Only)

Commands	Model Name							
	TSP700	TSP600	TSP800	TUP900				
FS !	○	○	○	○				
FS &	○	○	○	○				
FS -	○	○	○	○				
FS .	○	○	○	○				
FS 2	○	○	○	○				
FS C	○	○	○	○				
FS S	○	○	○	○				
FS W	○	○	○	○				

• ESC/POS Black Mark Related Commands (When black marks are effective)

Commands	Model Name							
	TSP700	TSP600	TSP800	TUP900				
FF	○	○	○	○				
DLE ENQ	○	○	○	○				
GS FF	x	x	x	○				
GS (F	x	x	x	○				
GS (M n=1	x	x	x	○				
GS (M n=2	x	x	x	○				
GS (M n=3	x	x	x	○				
GS <	○	○	○	x				
GS V	○	○	○	○				

• STAR Original Commands

Commands	Model Name							
	TSP700	TSP600	TSP800	TUP900				
ESC GS =	○	○	○	○				
ESC GS t	○	○	○	○				
ESCGS#m	○	○	○	○				

• STAR Original Maintenance Counter Control Commands
There are no commands.

• STAR Original Presenter Control Commands

Commands	Model Name							
	TSP700	TSP600	TSP800	TUP900				
ESC SYN 0	x	x	x	○				
ESC SYN 1	x	x	x	○				
ESC SYN 3	x	x	x	○				
ESC SYN 4	x	x	x	○				

• Star Original Mark Commands

Commands	Model Name							
	TSP700	TSP600	TSP800	TUP900				
ESC GS * 0	From Ver4.0	x	x	From Ver3.0				
ESC GS * 1	From Ver4.0	x	x	From Ver3.0				
ESC GS * 2	From Ver4.0	x	x	From Ver3.0				
ESC GS * W	From Ver4.0	x	x	From Ver3.0				
ESC GS * C	From Ver4.0	x	x	From Ver3.0				

• STAR Original Auto Logo Commands

Commands	Model Name							
	TSP700	TSP600	TSP800	TUP900				
ESC GS/W	From Ver4.0	x	x	X				
ESC GS / C	From Ver4.0	x	x	X				
ESC GS / 1	From Ver4.0	x	x	X				
ESC GS / 2	From Ver4.0	x	x	X				
ESC GS / 3	From Ver4.0	x	x	X				
ESC GS / 4	From Ver4.0	x	x	X				
ESC GS / 5	From Ver4.0	x	x	X				
ESC GS / 6	From Ver4.0	x	x	X				

7-2 Parallel Interface

• Standard Commands

Commands	Model Name							
	TSP700	TSP600	TSP800	TUP900				
HT	○	○	○	○				
LF	○	○	○	○				
FF	○	○	○	○				
CR	○	○	○	○				
CAN	○	○	○	○				
DLE EOT	1. Spec.	1. Spec.	1. Spec.	2. Spec.				
DLE ENQ	x	○	x	x				
DLE DC4	○	○	○	X				
ESC FF	○	○	○	○				
ESC SP	○	○	○	○				
ESC !	○	○	○	○				
ESC $	○	○	○	○				
ESC %	○	○	○	○				
ESC &	○	○	○	○				
ESC *	○	○	○	○				
ESC -	○	○	○	○				
ESC 2	○	○	○	○				
ESC 3	○	○	○	○				
ESC =	○	○	○	○				
ESC ?	○	○	○	○				
ESC @	○	○	○	○				
ESC D	○	○	○	○				
ESC E	○	○	○	○				
ESC G	○	○	○	○				
ESC J	○	○	○	○				
ESC L	○	○	○	○				
ESC M	○	○	○	○				
ESC R	○	○	○	○				
ESC S	○	○	○	○				
ESC T	○	○	○	○				
ESC V	○	○	○	○				
ESC W	○	○	○	○				
ESC \	○	○	○	○				
ESC a	○	○	○	○				
ESC c 3	Ver 4.0 to 2 (A) Spec.	Ver4.0 to 2 (A) Spec.	Ver5.0 to 2 (A) Spec.	2 (B) Spec.				
ESC c 4	○	○	○	○				
ESC c 5	○	○	○	○				
ESC d	○	○	○	○				
ESC p	○	○	○	x				
ESC t	○	○	○	○				
ESC {	○	○	○	○				
FS g 1	x	x	x	x				
FS g 2	x	x	x	x				
FS p	○	○	○	○				
FS q	○	○	○	○				
GS !	○	○	○	○				
GS $	○	○	○	○				
GS *	○	○	○	○				
GS (A	○	○	○	○				
GS (K	x	x	x	○				
GS (N	x	x	x	○				
GS /	○	○	○	○				
GS :	○	○	○	○				
GS B	○	○	○	○				
GS C 0	x	x	x	○				
GS C 1	x	x	x	○				
GS C 2	x	x	x	○				
GS C ;	x	x	x	○				
GS E	x	x	x	○				
GS H	○	○	○	○				
GS I	○	○	○	○				
GS L	○	○	○	○				
GS P	○	○	○	x				
GS T	x	x	x	○				
GS V	○	○	○	○				
GS W	○	○	○	○				
GS \	○	○	○	○				
GS ^	○	○	○	○				

Commands	Model Name							
	TSP700	TSP600	TSP800	TUP900				
GS a	○	○	○	○				
GS b	x	x	x	x				
GS c	○	○	○	○				
GS f	○	○	○	○				
GS h	○	○	○	○				
GS k	○	○	○	○				
GS r	○	○	○	○				
GS v 0	○	○	○	○				
GS w	○	○	○	○				

• Kanji Control Commands (DBCS Settings, Kanji Specifications Only)

Commands	Model Name							
	TSP700	TSP600	TSP800	TUP900				
FS !	○	○	○	○				
FS &	○	○	○	○				
FS -	○	○	○	○				
FS .	○	○	○	○				
FS 2	○	○	○	○				
FS C	○	○	○	○				
FS S	○	○	○	○				
FS W	○	○	○	○				

• ESC/POS Black Mark Related Commands (When black marks are effective)

Commands	Model Name							
	TSP700	TSP600	TSP800	TUP900				
FF	○	○	○	○				
DLE ENQ	○	○	○	○				
GS FF	x	x	x	○				
GS (F	x	x	x	○				
GS (M n=1	x	x	x	○				
GS (M n=2	x	x	x	○				
GS (M n=3	x	x	x	○				
GS <	○	○	○	x				
GS V	○	○	○	○				

• STAR Original Commands

Commands	Model Name							
	TSP700	TSP600	TSP800	TUP900				
ESC GS =	○	○	○	○				
ESC GS t	○	○	○	○				
ESCGS#m	○	○	○	○				

• STAR Original Maintenance Counter Control Commands
There are no commands.

• STAR Original Presenter Control Commands

Commands	Model Name							
	TSP700	TSP600	TSP800	TUP900				
ESC SYN 0	x	x	x	○				
ESC SYN 1	x	x	X	○				
ESC SYN 3	x	x	x	○				
ESC SYN 4	x	x	x	○				

• Star Original Mark Commands

Commands	Model Name							
	TSP700	TSP600	TSP800	TUP900				
ESC GS * 0	From Ver4.0	x	x	From Ver3.0				
ESC GS * 1	From Ver4.0	x	x	From Ver3.0				
ESC GS * 2	From Ver4.0	x	x	From Ver3.0				
ESC GS * W	From Ver4.0	x	x	From Ver3.0				
ESC GS * C	From Ver4.0	x	x	From Ver3.0				

• STAR Original Auto Logo Commands

Commands	Model Name							
	TSP700	TSP600	TSP800	TUP900				
ESC GS / W	From Ver4.0	x	x	x				
ESC GS / C	From Ver4.0	x	x	x				
ESC GS / 1	From Ver4.0	x	x	x				
ESC GS / 2	From Ver4.0	x	x	x				
ESC GS / 3	From Ver4.0	x	x	x				
ESC GS / 4	From Ver4.0	x	x	x				
ESC GS / 5	From Ver4.0	x	x	x				
ESC GS / 6	From Ver4.0	x	x	x				

7-3 USB I/F (Ver 1.0) • Ethernet I/F (Ver 1.0)

• Standard Commands

Commands	Model Name							
	TSP700	TSP600	TSP800	TUP900				
HT	--	--	--	○				
LF	--	--	--	○				
FF	--	--	--	○				
CR	--	--	--	○				
CAN	--	--	--	○				
DLE EOT	--	--	--	x				
DLE ENQ	--	--	--	x				
DLE DC4	--	--	--	x				
ESC FF	--	--	--	○				
ESC SP	--	--	--	○				
ESC !	--	--	--	○				
ESC $	--	--	--	○				
ESC %	--	--	--	○				
ESC &	--	--	--	○				
ESC *	--	--	--	○				
ESC -	--	--	--	○				
ESC 2	--	--	--	○				
ESC 3	--	--	--	○				
ESC =	--	--	--	○				
ESC ?	--	--	--	○				
ESC @	--	--	--	○				
ESC D	--	--	--	○				
ESC E	--	--	--	○				
ESC G	--	--	--	○				
ESC J	--	--	--	○				
ESC L	--	--	--	○				
ESC M	--	--	--	○				
ESC R	--	--	--	○				
ESC S	--	--	--	○				
ESC T	--	--	--	○				
ESC V	--	--	--	○				
ESC W	--	--	--	○				
ESC \	--	--	--	○				
ESC a	--	--	--	○				
ESC c 3	--	--	--	2(B)Specs.				
ESC c 4	--	--	--	○				
ESC c 5	--	--	--	○				
ESC d	--	--	--	○				
ESC p	--	--	--	x				
ESC t	--	--	--	○				
ESC {	--	--	--	○				
FS g 1	--	--	--	x				
FS g 2	--	--	--	x				
FS p	--	--	--	○				
FS q	--	--	--	○ (*)				
GS !	--	--	--	○				
GS $	--	--	--	○				
GS *	--	--	--	○				
GS (A	--	--	--	○				
GS (K	--	--	--	○				
GS (N	--	--	--	○				
GS /	--	--	--	○				
GS :	--	--	--	○				
GS B	--	--	--	○				
GS C 0	--	--	--	○				
GS C 1	--	--	--	○				
GS C 2	--	--	--	○				
GS C ;	--	--	--	○				
GS E	--	--	--	○				
GS H	--	--	--	○				
GS I	--	--	--	x				
GS L	--	--	--	○				
GS P	--	--	--	x				
GS T	--	--	--	○				
GS V	--	--	--	○				
GS W	--	--	--	○				
GS \	--	--	--	○				
GS ^	--	--	--	○				

Commands	Model Name							
	TSP700	TSP600	TSP800	TUP900				
GS a	--	--	--	x				
GS b	--	--	--	x				
GS c	--	--	--	○				
GS f	--	--	--	○				
GS h	--	--	--	○				
GS k	--	--	--	○				
GS r	--	--	--	x				
GS v 0	--	--	--	○				
GS w	--	--	--	○				

• Kanji Control Commands (DBCS Settings, Kanji Specifications Only)

Commands	Model Name							
	TSP700	TSP600	TSP800	TUP900				
FS !	--	--	--	○				
FS &	--	--	--	○				
FS -	--	--	--	○				
FS .	--	--	--	○				
FS 2	--	--	--	○				
FS C	--	--	--	○				
FS S	--	--	--	○				
FS W	--	--	--	○				

• ESC/POS Black Mark Related Commands (When black marks are effective)

Commands	Model Name							
	TSP700	TSP600	TSP800	TUP900				
FF	--	--	--	○				
DLE ENQ	--	--	--	○				
GS FF	--	--	--	○				
GS (F	--	--	--	○				
GS (M n=1	--	--	--	○ (*)				
GS (M n=2	--	--	--	○				
GS (M n=3	--	--	--	○ (*)				
GS <	--	--	--	x				
GS V	--	--	--	○				

• STAR Original Commands

Commands	Model Name							
	TSP700	TSP600	TSP800	TUP900				
ESC GS =	--	--	--	○ (*)				
ESC GS t	--	--	--	○				
ESC GS # m	--	--	--	○ (*)				

• STAR Original Maintenance Counter Control Commands
There are no commands.

• STAR Original Presenter Control Commands

Commands	Model Name							
	TSP700	TSP600	TSP800	TUP900				
ESC SYN 0	--	--	--	○				
ESC SYN 1	--	--	--	○				
ESC SYN 3	--	--	--	x				
ESC SYN 4	--	--	--	○				

• Star Original Mark Commands

Commands	Model Name							
	TSP700	TSP600	TSP800	TUP900				
ESC GS * 0	--	--	--	From Ver3.0				
ESC GS * 1	--	--	--	From Ver3.0				
ESC GS * 2	--	--	--	From Ver3.0				
ESC GS * W	--	--	--	From Ver3.0				
ESC GS * C	--	--	--	From Ver3.0				

• STAR Original Auto Logo Commands

Commands	Model Name							
	TSP700	TSP600	TSP800	TUP900				
ESC GS / W	--	--	--	x				
ESC GS / C	--	--	--	x				
ESC GS / 1	--	--	--	x				
ESC GS / 2	--	--	--	x				
ESC GS / 3	--	--	--	x				
ESC GS / 4	--	--	--	x				
ESC GS / 5	--	--	--	x				
ESC GS / 6	--	--	--	x				

(*) After executing a printer reset, the printer hangs up. It is necessary to turn the printer off then on again.

7-4 USB I/F (Ver 2.0) • Ethernet I/F (Ver 2.0)

• Standard Commands

Commands	Model Name							
	TSP700	TSP600	TSP800	TUP900				
HT	--	--	--	○				
LF	--	--	--	○				
FF	--	--	--	○				
CR	--	--	--	○				
CAN	--	--	--	○				
DLE EOT	--	--	--	2. Specs				
DLE ENQ	--	--	--	x				
DLE DC4	--	--	--	x				
ESC FF	--	--	--	○				
ESC SP	--	--	--	○				
ESC !	--	--	--	○				
ESC $	--	--	--	○				
ESC %	--	--	--	○				
ESC &	--	--	--	○				
ESC *	--	--	--	○				
ESC -	--	--	--	○				
ESC 2	--	--	--	○				
ESC 3	--	--	--	○				
ESC =	--	--	--	○				
ESC ?	--	--	--	○				
ESC @	--	--	--	○				
ESC D	--	--	--	○				
ESC E	--	--	--	○				
ESC G	--	--	--	○				
ESC J	--	--	--	○				
ESC L	--	--	--	○				
ESC M	--	--	--	○				
ESC R	--	--	--	○				
ESC S	--	--	--	○				
ESC T	--	--	--	○				
ESC V	--	--	--	○				
ESC W	--	--	--	○				
ESC \	--	--	--	○				
ESC a	--	--	--	○				
ESC c 3	--	--	--	2(B)Specs.				
ESC c 4	--	--	--	○				
ESC c 5	--	--	--	○				
ESC d	--	--	--	○				
ESC p	--	--	--	x				
ESC t	--	--	--	○				
ESC {	--	--	--	○				
FS g 1	--	--	--	x				
FS g 2	--	--	--	x				
FS p	--	--	--	○				
FS q	--	--	--	○				
GS !	--	--	--	○				
GS $	--	--	--	○				
GS *	--	--	--	○				
GS (A	--	--	--	○				
GS (K	--	--	--	○				
GS (N	--	--	--	○				
GS /	--	--	--	○				
GS :	--	--	--	○				
GS B	--	--	--	○				
GS C 0	--	--	--	○				
GS C 1	--	--	--	○				
GS C 2	--	--	--	○				
GS C ;	--	--	--	○				
GS E	--	--	--	○				
GS H	--	--	--	○				
GS I	--	--	--	○				
GS L	--	--	--	○				
GS P	--	--	--	x				
GS T	--	--	--	○				
GS V	--	--	--	○				
GS W	--	--	--	○				
GS \	--	--	--	○				
GS ^	--	--	--	○				

Commands	Model Name							
	TSP700	TSP600	TSP800	TUP900				
GS a	--	--	--	Δ When n=0 Command Ingored				
GS b	--	--	--	x				
GS c	--	--	--	○				
GS f	--	--	--	○				
GS h	--	--	--	○				
GS k	--	--	--	○				
GS r	--	--	--	○				
GS v 0	--	--	--	○				
GS w	--	--	--	○				

• Kanji Control Commands (DBCS Settings, Kanji Specifications Only)

Commands	Model Name							
	TSP700	TSP600	TSP800	TUP900				
FS !	--	--	--	○				
FS &	--	--	--	○				
FS -	--	--	--	○				
FS .	--	--	--	○				
FS 2	--	--	--	○				
FS C	--	--	--	○				
FS S	--	--	--	○				
FS W	--	--	--	○				

• ESC/POS Black Mark Related Commands (When black marks are effective)

Commands	Model Name							
	TSP700	TSP600	TSP800	TUP900				
FF	--	--	--	○				
DLE ENQ	--	--	--	○				
GS FF	--	--	--	○				
GS (F	--	--	--	○				
GS (M n=1	--	--	--	○				
GS (M n=2	--	--	--	○				
GS (M n=3	--	--	--	○				
GS <	--	--	--	x				
GS V	--	--	--	○				

• STAR Original Commands

Commands	Model Name							
	TSP700	TSP600	TSP800	TUP900				
ESC GS =	--	--	--	○				
ESC GS t	--	--	--	○				
ESC GS # m	--	--	--	○				

• STAR Original Maintenance Counter Control Commands
There are no commands.

• STAR Original Presenter Control Commands

Commands	Model Name							
	TSP700	TSP600	TSP800	TUP900				
ESC SYN 0	--	--	--	○				
ESC SYN 1	--	--	--	○				
ESC SYN 3	--	--	--	○				
ESC SYN 4	--	--	--	○				

• Star Original Mark Commands

Commands	Model Name							
	TSP700	TSP600	TSP800	TUP900				
ESC GS * 0	--	--	--	From Ver 3.0				
ESC GS * 1	--	--	--	From Ver 3.0				
ESC GS * 2	--	--	--	From Ver 3.0				
ESC GS * W	--	--	--	From Ver 3.0				
ESC GS * C	--	--	--	From Ver 3.0				

• STAR Original Auto Logo Commands

Commands	Model Name							
	TSP700	TSP600	TSP800	TUP900				
ESC GS / W	--	--	--	x				
ESC GS / C	--	--	--	x				
ESC GS / 1	--	--	--	x				
ESC GS / 2	--	--	--	x				
ESC GS / 3	--	--	--	x				
ESC GS / 4	--	--	--	x				
ESC GS / 5	--	--	--	x				
ESC GS / 6	--	--	--	x				