**NCR 7197 Thermal Receipt Printer**
**Release 1.0**
# Owner's Manual

**Important Information to the User**

In order to ensure compliance with the Product Safety, FCC and CE marking requirements, you must use the power supply, power cord, and interface cable which were shipped with this product or which meet the following parameters:

**Power Supply**

UL Listed (QQGQ), Class 2 power supply with SELV (Secondary Extra Low Voltage), non-energy hazard output, limited energy source, input rated 100-240 Vac, 1.5/0.8 A, 50/60 Hz, output rated 24 Vdc, 2.3 A. or 3.15A

Use of this product with a power supply other than the NCR power supply will require you to test this power supply and NCR printer for FCC and CE mark certification.

**Interface Cable**

A shielded (360 degree) interface cable must be used with this product. The shield must be connected to the frame or earth ground connection or earth ground reference at EACH end of the cable.

Use of a cable other than described here will require that you test this cable with the NCR printer and your system for FCC and CE mark certification.

**Power Cord**

A UL listed, detachable power cord must be used for this product. For applications where the power supply module may be mounted on the floor, a power cord with Type SJT marking must be used. For applications outside the US, power cords which meet the particular country's certification and application requirements should be used.

Use of a power cord other than described here may result in a violation of safety certifications which are in force in the country of use.

**Federal Communications Commission (FCC)**
**Radio Frequency Interference Statement**

**Warning:** Changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

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

**Communication Cables**

Shielded communication cables must be used with this unit to ensure compliance with the Class A FCC limits.

**Information to User**

This equipment must be installed and used in strict accordance with the manufacturer's instructions. However, there is no guarantee that interference to radio communications will not occur in a particular commercial installation. If this equipment does cause interference, which can be determined by turning the equipment off and on, the user is encouraged to contact NCR immediately.

The NCR company is not responsible for any radio or television interference caused by unauthorized modification of this equipment or the substitution or attachment of connecting cables and equipment other than those specified by NCR. The correction of interferences caused by such unauthorized modification, substitution or attachment will be the responsibility of the user.

**Industry Canada (IC)**
**Radio Frequency Interference Statement**

This Class A digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations.

*Cet appareil numérique de la classe A respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.*

# Quick Reference

This Quick Reference will direct you to key areas of the Owner's Manual. For a complete listing of topics, consult the Table of Contents or the Index.

*Setting Up the Printer* ...................................................... *page 7*

Basic requirements for unpacking and installation, connecting the printer, turning it on, and running the print test.

*Running the Data Scope Mode* ................................... *page 45*

Instructions for running the data scope mode.

*Troubleshooting* ............................................................ *page 37*

Information on correcting problems with the printer.

## How to Use this Book

Use this book as a general and technical reference manual and as a guide when replacing parts on the printer. The service guide is intended as a guide for service representatives, field engineers, and those who will be installing and learning about the 7197 printer. It can also be used as a reference for service courses.

See the Quick Reference page, the Contents, or the Index for detailed listings of what is contained in this book.

## Who Should Use this Book?

You must be a trained service representative to service the 7197 Thermal Receipt printer.

## How to Obtain More Information

For more information see the following documents:

- *7197 Receipt Printer: Service Manual* (B005-000-1410)
- *7197 Receipt Printer: Parts Identification Manual* (B005-000-1411)

For this and additional copies of the Owner's Manual, contact your sales representative.

## Revision Record

| Issue | Date | Remarks |
| --- | --- | --- |
| A | Apr 2002 | First printing |
| B | May 2002 | Update to reflect first production configuration. |
|  |  |  |
|  |  |  |

# Contents

# Chapter 1: About the 7197 Printer

Receipt Cover                                             Receipt

LED

Paper Feed
Button

Top Cover

The 7197 printer is a fast, quiet, relatively small and very reliable multiple-function printer. It prints receipts and two color printing.

The industry-standard RS-232C communication interface allows the 7197 to be connected to any host computer that uses RS-232C or USB communication interface.

# Features and Options

The 7197 printer comes with several features and options.

## Receipt Station

- Thermal printing
- Standard pitch (host selectable): 15.2 characters per inch, 44 columns
- Compressed pitch (host selectable): 19.0 characters per inch, 56 columns
- Resident bar codes
  - Code 39
  - Code 93
  - Code 128
  - UPC-A
  - UPC-E
  - JAN8 (EAN)
  - JAN13 (EAN)
  - Interleaved 2 of 5
  - Codabar
  - PDF417
- Drop-in paper loading requiring no spindle or threading paper
- Paper low indicator
- Paper exhaust indicator
- Variety of print modes: double high, double wide, upside down, and rotated
- 14 resident character language Code Pages:
  - PC Code Page 437 (US English)
  - PC Code Page 850 (Multilingual)
  - PC Code Page 852 (Slavic)
  - PC Code Page 858 (with Euo symbol)
  - PC Code Page 860 (Portuguese)
  - PC Code Page 862 (Hebrew)
  - PC Code Page 863 (French Canadian)
  - PC Code Page 864 (Arabic)
  - PC Code Page 865 (Nordic)
  - PC Code Page 866 (Cyrillic)
  - PC Code Page 1252 (Windows Latin #1)
  - PC Code Page Katakana
  - PC Code Page 874 (Thai)
  - Space Page

- 16K RAM for downloaded character sets or bit-mapped graphics (such as logos)

## General Features

- Knife
- Cover open sensors
- One cash drawer connector (supports 2 cash drawers)
- Industry standard RS-232C and USB communication interface
- History EEROM for custom settings
- Audible tone (controlled by application)

**Note:** The 7197 does not have a paper journal. The journal is kept electronically by the host computer.

## Options

- Remote power supply
- Communication cables

# Thermal Print Head

The 7197 Receipt Station uses a thermal print head for printing receipts, and is extremely fast and quiet. Since it uses heat to print directly on paper, there is no cassette or ribbon to change, eliminating soiled fingers and paper dust.

There is no regularly scheduled maintenance for the print head and it does not need to be regularly cleaned. However, if it does appear dirty, wipe it with cotton swabs and rubbing alcohol. If spotty or light printing problems persist after the thermal print head has been cleaned, see "Chapter 3: Solving Problems" for more information.

**Note:** The thermal print head does not normally require cleaning if the recommended paper is used. If non-recommended paper has been used for an extended period of time, cleaning the print head with cotton swabs and rubbing alcohol will not be of much benefit. See "Ordering Receipt Paper" on the next page for the recommended paper.

The print head is designed for a very long life, but it may be replaced if needed. Only a trained service representative may replace the print head. See "Chapter 3: Solving Problems" to determine if the print head needs to be replaced.

# Ordering Paper and Supplies

Thermal receipt paper, ribbon cassettes, and forms can be ordered. Documentation is also available.

## Ordering Thermal Receipt Paper

The 7197 requires NCR qualified thermal paper to be used on the thermal receipt print station to insure proper operation of the printer.  In addition the paper rolls must be have the following dimension.

| Diameter | Length | Width |
|---|---|---|
| 80 mm max. (3.15 in.) | 83 meters (273 ft.) | 80 mm ± .5 mm (3.15 ± .008 in.) |

The paper must not be attached at the core. Otherwise the receipt station will be damaged when the paper is exhausted.

Paper grades available from NCR

| Paper Stock | Paper Grade Description |
|---|---|
| 856911 | Economy (for text printing) |
| 856966 | Standard Sensitivity (for text and simple graphics) |
| 878559 | High Sensitivity (for text, bar codes & detailed graphics) |
| 856380 | For improved archiveability and added resistance to incompatible substances |
| 856461 | Red/Black |
| 856458 | Blue/Black |

The paper must not be attached at the core. Otherwise the receipt station will be damaged when the paper is exhausted.

To order thermal receipt paper, contact your sales representative or order from NCR at the following address or toll free number:

**NCR**
Media Products Division
9995 Washington Church Road
Miamisburg, OH  45342
Voice: 1(800)543-8130 (toll free), or local listing of  The NCR Media Products sales office

## Ordering Other Supplies

Contact your sales representative to order the supplies listed in the table.

| Item | Type | Number |
|---|---|---|
| Power supply with attached cable to printer and U.S. power supply cord | 75 Watt Power Supply | 7167-K331-V001 |
| Power supply ( w/o power cord) | 75 Watt Power Supply | 7167-K302-V001 |
| Power supply cord (to outlet) | United States<br>International (no plug)<br>United Kingdom<br>S.E.V.<br>Australia<br>International (with plug) | 1406-C325-0030<br>1416-C319-0030<br>1416-C321-0030<br>1416-C320-0030<br>1416-C322-0030<br>1416-C323-0030 |
| RS-232C Communication Cables<br>    9-pin to 9-pin<br>    9-pin to 9-pin |  0.7 meters<br>3.0 meters (9.8 feet) |  1416-C359-0007<br>1416-C266-0040 |
| DC Plus Power Cables<br><br>  DC Power from NCR POS Terminal<br><br>  DC Power from NCR POS Terminal | <br><br>1.0  Meters<br><br>4.0 Meters | <br><br>1416-C712-0010<br><br>1416-C712-0040 |
| USB Communication Cables<br><br>  USB Type A to Type B Connector<br><br>  USB Type A to Type B Connector | <br><br>2.0  Meters<br><br>4.0 Meters | <br><br>1416-C528-0010<br><br>1416-C528-0040 |
| USB Plus Power Cables<br><br>  USB Plus Power to Type B Connector<br>  USB Plus Power to Type B Connector | <br><br>1.0  Meters<br>4.0 Meters | <br><br>1416-C713-0010<br>1416-C713-0040 |
| Cash Drawer | 2189 | 2189-K002-V001<br><br> (Switchable for Drawer 1 or Drawer 2) |
| Cash Drawer Cable | Y Cable | 1416-C372-0006 |

## Ordering Documentation

Contact your sales representative to obtain the following documentation:

- *7197 Receipt Printer: Parts Identification Manual* (B005-0000-1411)
- *7197 Receipt Printer: Service Manual* (B0005-0000-1410)
  (includes Troubleshooting Guide)
- *7197 Receipt Printer: Owners Manual* (B0005-0000-1409)

# Cleaning the Printer

## Cleaning the Cabinet

The external cabinet materials and finish are durable and resistant to these items:

- Cleaning solutions
- Lubricants
- Fuels
- Cooking oils
- Ultraviolet light

There is no scheduled maintenance required for the 7197.

Clean the cabinet as needed to remove dust and finger marks. Use any household cleaner designed for plastics, but test it first on a small unseen area. If the receipt bucket is dirty, wipe it with a clean, damp cloth.

## Cleaning the Thermal Print Head

**Caution:** Do not spray or try to clean the thermal print head or the inside of the printer with any kind of cleaner as this may damage the thermal print head and electronics.

If the thermal print head appears dirty, wipe it with cotton swabs and isoprophl alcohol.

If spotty or light printing problems persist after the thermal print head has been cleaned, see "Chapter 3: Solving Problems" for more information.

**Note:** The thermal print head does not normally require cleaning if the recommended paper grades are used. If non-recommended paper has been used for an extended period of time, cleaning the print head with cotton swabs and rubbing alcohol will not be of much benefit. See "Ordering Paper and Supplies" earlier in this manual for recommended paper.

# Chapter 2: Setting Up and Using the Printer

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## What Is in the Box?

The following items are packed in the shipping box:

- Printer enclosed in a plastic bag and foam pack

- Thermal receipt paper roll

These items may be ordered as options from NCR and will be shipped separately:

- Communication cable (from host computer to printer)

- DC Power Cable

- Remote Power Supply

- Cash drawer with cables (may be ordered from other equipment suppliers: see "Ordering Other Supplies" in chapter 1)

## Removing the Packing Material



Receipt
Cover



1.  Remove the printer from the foam pack and plastic bag.

2.  Remove the receipt paper roll and cables from the foam packing material.

3.  Save all packing materials for future storing, moving, or shipping the printer.

**Note:  If the printer is wall mounted  the paper low switch must be disable.**

## Repacking the Printer

Review the illustrations on the previous two pages to pack the printer.

1. Place receipt paper between the receipt cover and the print head for protection.

2. Place the printer in the plastic bag and foam pack, place the packed printer in the box, and secure the box with packing tape.

3. If you are sending the printer to NCR for repair, call your NCR-authorized service representative for instructions on where to send the printer.

   Be prepared to answer questions concerning shipping and billing.

# Choosing a Location

The 7197 printer takes up relatively little counter space and may be set on or near the host computer. Make sure there is enough room to open the receipt cover to change the paper. The illustration shows the actual dimensions of the printer, but leave several inches around the printer for connecting and accessing the cables.

154.90 mm
(6.20 in.)

182.40 mm
(7.30 in.)

145.50 mm
(5.80 in.)
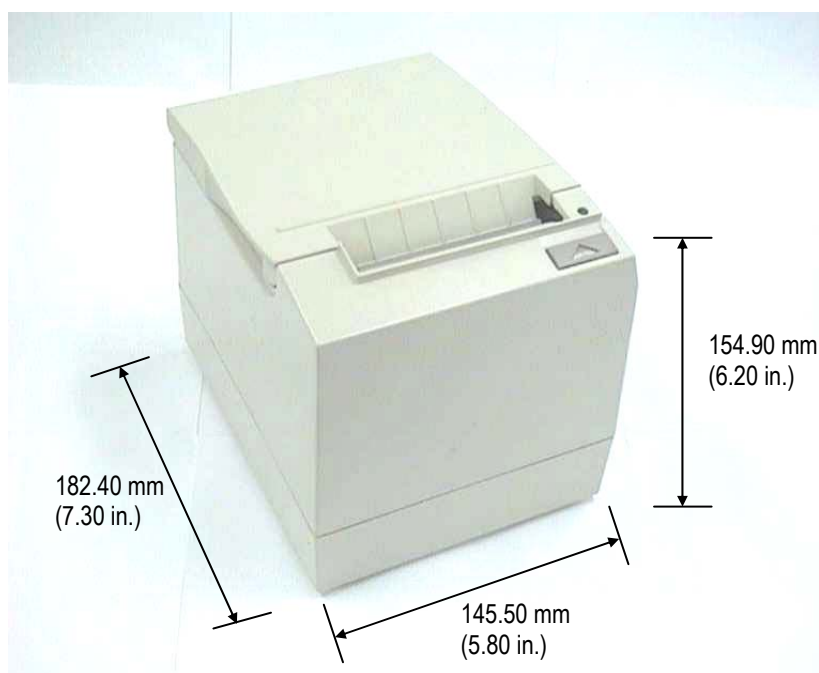
## Wall mounted

The 7197 printer may be mounted on a vertical wall by using the keyhole slot at the bottom of the printer base. Make sure there is enough room to open the receipt cover to change the paper. Mount the screws on the wall using the following recommended mount dimensions.  Use a #8 wood screw which is to be securely fastened to a wall stud or using a "Molly" fastener (not provided).

Wall

Screw

121mm (4.75 in.)

3.5 ~ 4 mm
(.138 –  .160 in.)

128 mm (5.04 in..)
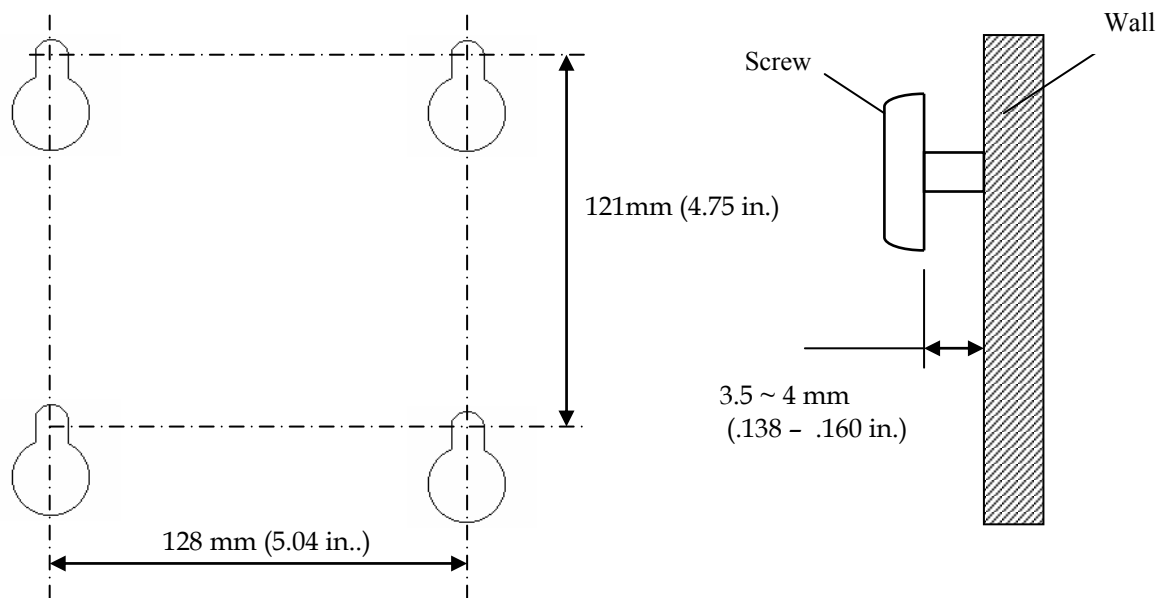
Note:  Paper low must be disabled when printer is wall mounted

## Wall mounted Power Supply (Option)

The 75 watt power supply may be mounted on a vertical wall by using the holes on the cover. Mount the screws on the wall using the following recommended mount dimensions.  Use a #8 wood screw which is to be securely fastened to a wall stud or using "Molly" fasteners.

75mm
(2.95 in)

10mm (.39 in)

175mm (6.89 in)
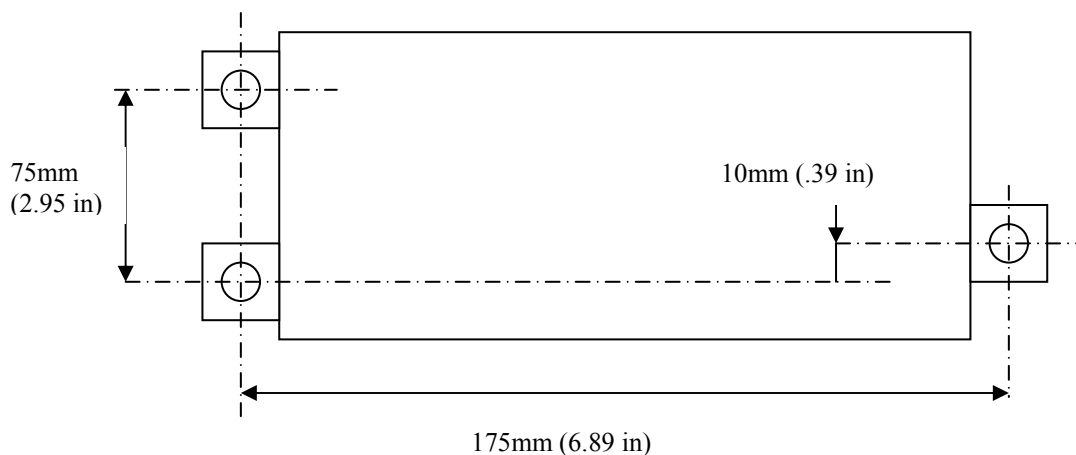
# Setting Switches

The DIP switches, located at the back of the printer, are used for two purposes:

- To set variables for several printer functions (see the sections for the various printer functions in "Level 1 Diagnostics" in "Chapter 4: Diagnostics" for Setting Up the Printer)

- To perform diagnostic tests (see the sections for the various diagnostic tests in "Level 1 Diagnostics" in "Chapter 4: Diagnostics" for Setting Up the Printer)

**Caution:** The DIP switches are set at the factory to predetermined settings and should not be changed unless to change parameters or to reflash the firmware.



**Back of Printer**
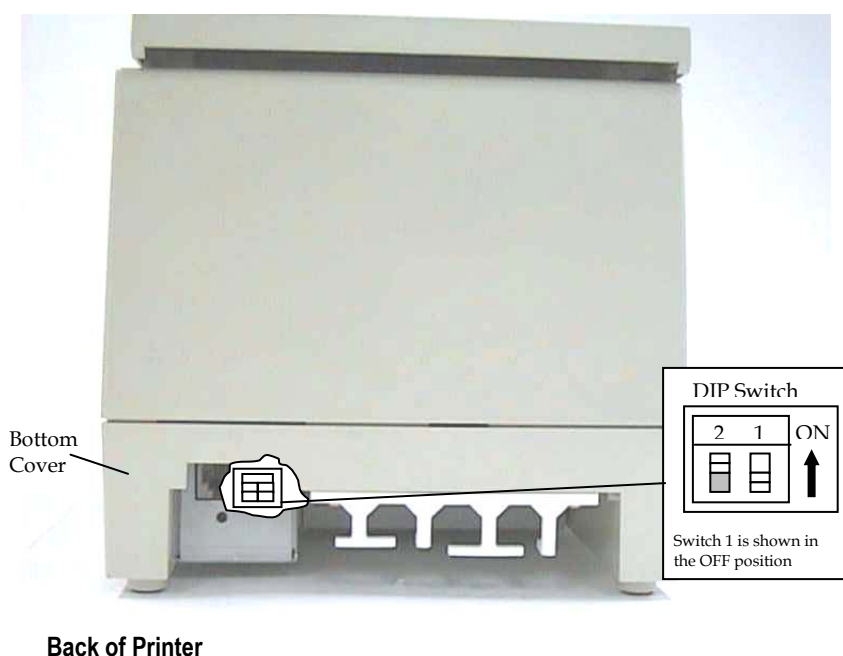
**Note:** Switch 1 is shown in the Off position for reference.

Use a paper clip or other pointed object to set the switches.

1. Set the switches to the desired settings shown in the table.

2. Reset the printer by disconnecting and reconnecting the power to the printer.

### Resetting the Printer

The printer is reset by disconnecting/reconnecting the DC power.

# Connecting the Cables

There are three different types of cables that connect to the printer:

- Power supply cable supplying power from the power supply

- Communication cable (RS-232 or USB) connecting the printer to the host computer

- Cash drawer cable connecting the printer to one or two cash drawers

**Caution:**  Disconnect the power before connecting the cables. Always connect the communication cable and cash drawer cables before connecting power to the power supply. Always disconnect power to the power supply before disconnecting the communication and cash drawer cables.

Follow these steps to connect the cables. See the illustration on the next page.

1.  Unplug the power supply from its power source.

2.  Connect the power and communication cables to their respective connectors under the printer as shown in the illustration.

    For the RS232 Cable, be sure to screw the communication cable to the communication connector.

3.  Route the cables through the cable strain relief on the bottom of the printer, then through the two slots in the cable access cover as shown in the illustration.

4.   Connect the communication cable to the appropriate host computer connector.

5.  Connect the cash drawer cable to the printer and cash drawer.

    The connectors is a standard phone jack located at the rear of the printer.

6.  Plug the power cord into the power supply for remote power supply installation, then plug the power supply into an outlet.

At this point, the printer receives power. If the On Line LED (green) is on, the printer is on-line. Otherwise, the printer is off-line.

7.   For Host powered installation plug the DC cable into the POS terminal.
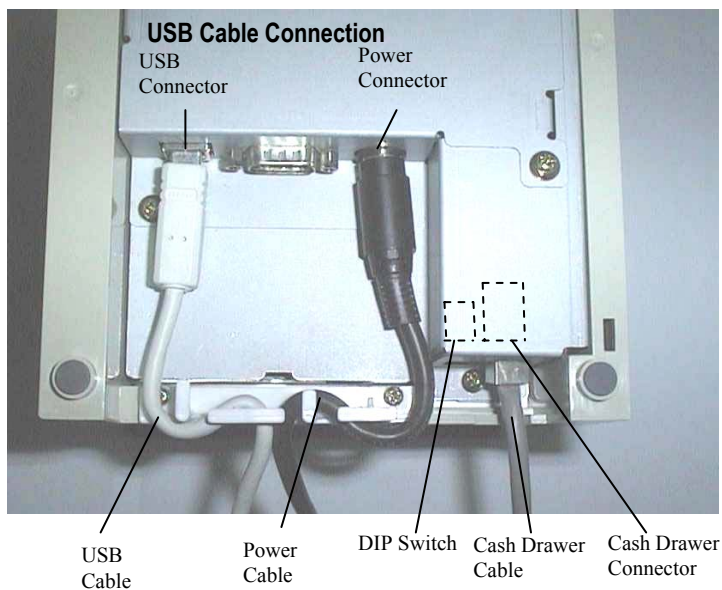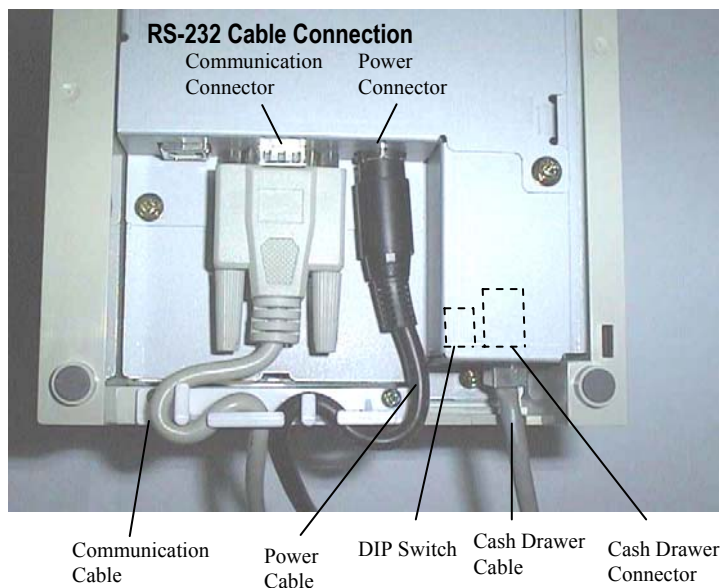
**Bottom of the Printer**

# About the Universal Serial Bus

The Universal Serial Bus (USB) is a peripheral bus for personal computers that was first released in January 1996. Since that time, virtually all Intel Architecture personal computers have the hardware to support USB, and a large number of computers exist that have both the hardware and software support required to interface with USB peripherals.

## Advantages of USB connections

USB has a number of advantages over legacy connection schemes (e.g., serial RS-232). These advantages include:

- High Speed: up to 12 MB/second for high-speed devices.

- Plug and Play: Devices are automatically recognized and configured at installation.

- Hot plug: Bus supports installation and removal of devices with the power applied.

- Up to 127 devices: One host can support up to 127 devices with the use of hubs.

- "Free ports": Most PC architecture machines contain two USB ports in the base hardware.

These advantages have become attractive to the POS industry for a couple of reasons.

**Additional POS devices.**  Some POS systems are required to host more peripherals than can be supported by two RS-232 ports typical in a platform. With the addition of one (or two) USB connectors, the platform can now support the additional devices that had previously required a serial port expander card.

**Higher bandwidths.**  New devices coming into use have bandwidth requirements that are higher than the bandwidth that can be supported on legacy interfaces. These devices include image scanners and printers. As the speed and capability of POS printers increases, the performance of the printer in an application can become limited by the speed of the communications interface. USB provides ample bandwidth to support current and future POS printer requirements.

## Advantages of the NCR USB Solution

NCR has eliminated any cost associated with porting applications to USB by implementing a USB solution that simulates standard serial communications in Windows 98 (SR2), Windows 98 USB Hot Patch, ID: Q236934, and NT 4.0 (Service Pack 3 or higher) and Windows 2000. Application developers need only redirect their software to the virtual serial ports created by the NCR USB solution to use the printer.

# Checking for USB Support on the Host Computer

If USB interface communications is required, the host computer must be equipped and setup properly. If it is not, you need to install a USB interface card. With the required hardware in place, Windows 98 (SR2), Windows 98 USB Hot Patch, ID: Q236934, NT 4.0 (Service Pack 4.0 or higher) and Windows 2000 (Service Pack 2.0 or higher) natively support plug-and-play USB with a built-in driver; Windows NT does not, and the NCR windows NT USB driver needs to be installed.

**IMPORTANT:   You need to have internet access to download the USB drivers from the NCR Web site://www.NCR.com.**

## Host Configuration

Verify that the proper hardware has been installed in the host PC.

**Windows 98:**

1. Open the Control Panel.
2. Click on System (Windows 98).
3. Click the Device Manager tab.
4. In the Device Manager window, scroll down the list of installed hardware devices until you find an entry for "Universal serial bus controller."

If this entry exists, your host computer is set up for USB operation. If this entry does not appear:

- Consult your computer documentation to see if USB must be enabled in the BIOS setup.

### Windows NT:

To see if your POS terminal is USB-compliant, look at the back.

- If it has a USB connector port, your hardware is all set.

**Note:**      Even though the host may have a USB port, Windows NT does not natively support plug-and-play USB because it does not have a built-in driver. You will need to load the NCR Windows NT USB driver (see "Installing the USB Printer Drivers").

- If the connector port is missing, you need to install a third-party USB card, according to the manufacturer's instructions.

**Note:**  For Windows NT units requiring the installation of a card, a Windows 98 USB card can be used with the NCR Windows NT driver.

**Windows 2000:**

1. Open the Control Panel.
2. Click on System.

*3.* Click the Device Manager tab.

4. In the Device Manager window, scroll down the list of installed hardware devices until you find an entry for "Universal serial bus controller."

If this entry exists, your host computer is set up for USB operation. If this entry does not appear:

- Consult your computer documentation to see if USB must be enabled in the BIOS setup.

# Configuring the Printer

USB is a plug-and-play environment. As such, neither the printer nor the host requires user configuration to work. However, since the NCR solution simulates a serial communication interface, you must configure "handshaking" on the printer for proper operation. The printer can be configured to use hardware flow control (using DTR/DSR) or software flow control (using XON/XOFF). All other serial communication parameters (i.e., baud rate, parity, stop bits, and data bits) are ignored.

### To define software or hardware handshaking:

1. Open the Receipt Cover and check whether there is paper in the printer. If there isn't, insert the paper roll, as described in the *Owner's Manual*.

2. Turn the printer so the back is facing you.

3. Set DIP switch 1 to the On position (up).

DIP Switch

2   1   ON

Switch 2 is shown in
the OFF position
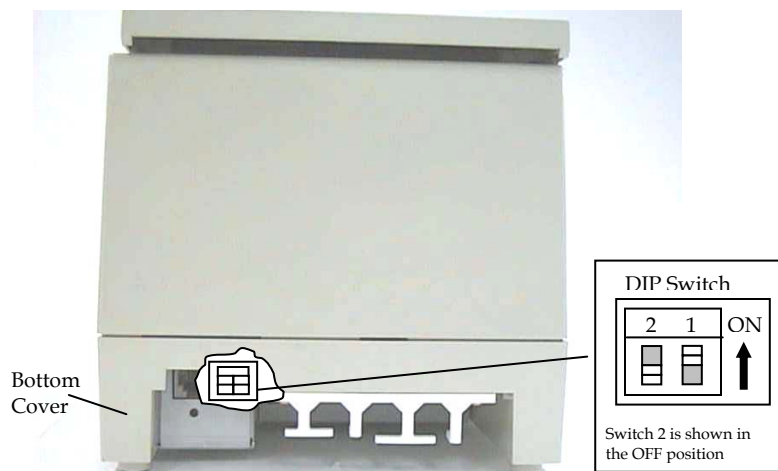
**Back of Printer**

4.  Reset the printer.  See below for information on resetting the printer.

The printer beeps, prints the current configuration, then waits for you to make a selection from the Main Menu on the printout.

## DIP Switch Settings Information

| Switch 1 Settings | Switch 2 Settings | Printer State |
|---|---|---|
| OFF (0) | OFF (0) | On-line Mode (default) |
| ON (1) | OFF (0) | Diagnostic Mode |
| OFF (0) | ON (1) | Flash Download Mode |
| ON (1) | ON (1) | Vendor Adjustment Mode |

*** Diagnostics Form ***

| | | |
|---|---|---|
| Model number | : | 7197-1005-9001 |
| Serial number | : | 01000011 |

Boot Firmware

| | | |
|---|---|---|
| Revision | : | V00.17 |
| CRC | : | 9592 |

Flash Firmware

| | | |
|---|---|---|
| Revision | : | V01.62 |
| CRC | : | 17A5 |

Hardware

| | | |
|---|---|---|
| Flash Memory Size | : | 2Mbytes |
| Flash Logos Size | : | 256Kbytes |
| Flash Fonts Size | : | 64Kbytes |
| Flash User Storage | : | 64Kbytes |

Communication Interface

| | | |
|---|---|---|
| Interface Type | : | RS232/USB |

Parameters

| | | |
|---|---|---|
| Baud Rate | : | 9600 |
| Data Bits | : | 8 |
| Stop Bits | : | 1 |
| Parity | : | None |
| Flow Control | : | DTR/DSR |
| Reception Errors | : | Print '?' |
| Receive Buffer | : | 4K |

| | | |
|---|---|---|
| Diagnostic Mode | : | Off, Normal Mode |

Emulation/Software :

| | | |
|---|---|---|
| Printer Emulation | : | 7194 Native Mode |
| Printer ID Mode | : | 7194 Native ID |
| Default LPI | : | 7.52 |
| Carriage Return | : | Used as Print Cmd |
| Asian Mode | : | Off |

To enter Printer Configure Menu:
1) Flip DIP switch #1 on
2) Reset the printer by pressing and holding Receipt Feed switch down while disconnecting and reconnecting the power

*** Printer Config Menu ***

The config menu allows you to set general printer parameters. Sub-menus are entered and selections are made using the Paper Feed Button:

- Short Click : Feed Button is quickly depressed then released.

- Long Click : Feed Button is held down more than 1sec then released.

**CAUTION !!**
The settings are predetermined in factory and should generally not be changed to avoid changing other functions.
**************

************* **Main Menu** *************
******************************************

Select a sub –menu:

| | |
|---|---|
| - EXIT | 1 Click |
| - Print Current Configuration | 2 Clicks |
| - Set Communication Interface | 3 Clicks |
| - Set Diagnostics Modes | 4 Clicks |
| - Set Emulation/Software | 5 Clicks |
| - Set Hardware Options | 6 Clicks |
| - Set Default Code Page | 7 Clicks |
| - Set EEPROM To Default | 8 Clicks |

Enter code, then hold button down at least 1 second to validate

**Important**: Ensure that the configuration settings match your host computer, if not, enter the Configuration Menu to make changes.

Follow the instructions on the scrolling menu, pressing the Paper Feed button to make selections. Indicate Yes with a long click, and No with a short click.

- Press and hold the Paper Feed button for at least one second for a long click.

- Press the Paper Feed button quickly for a short click.

5. Select Set Communication Interface from the Main Menu.

   The printer scrolls to the first question.

6. Select RS232/USB.

7. Skip through the parameters with short clicks until Set Flow Control Method is displayed.

8. Follow the instructions to select either XON/OFF or DTR/DSR, then skip the remaining communications parameters.

9. When you have finished, set DIP switch 1 to Off (down).

10. Reset the printer.

The printer resets with the new selection. You can verify the new setting by pressing the Paper Feed button to print out a diagnostics form or by holding the Paper Feed button while closing the Top Cover.

## Installing the USB Printer Drivers

Windows NT users need to run Service Pak 3 or higher for a successful installation and should exit all Windows programs before starting.

1. Verify that the printer is plugged in and the power is on.

2. The installation varies depending on the operating system.

   **Windows 98**

   Follow the on-screen instructions.  The printer beeps when the USB device is recognized.  Go to the location where you downloaded the drivers and double click the file.

**Add New Hardware Wizard**

This wizard searches for new drivers for:

7197

A device driver is a software program that makes a hardware device work.

< Back     Next >     Cancel

**Add New Hardware Wizard**

What do you want Windows to do?

⊙ Search for the best driver for your device. (Recommended).

○ Display a list of all the drivers in a specific location, so you can select the driver you want.

< Back     Next >     Cancel
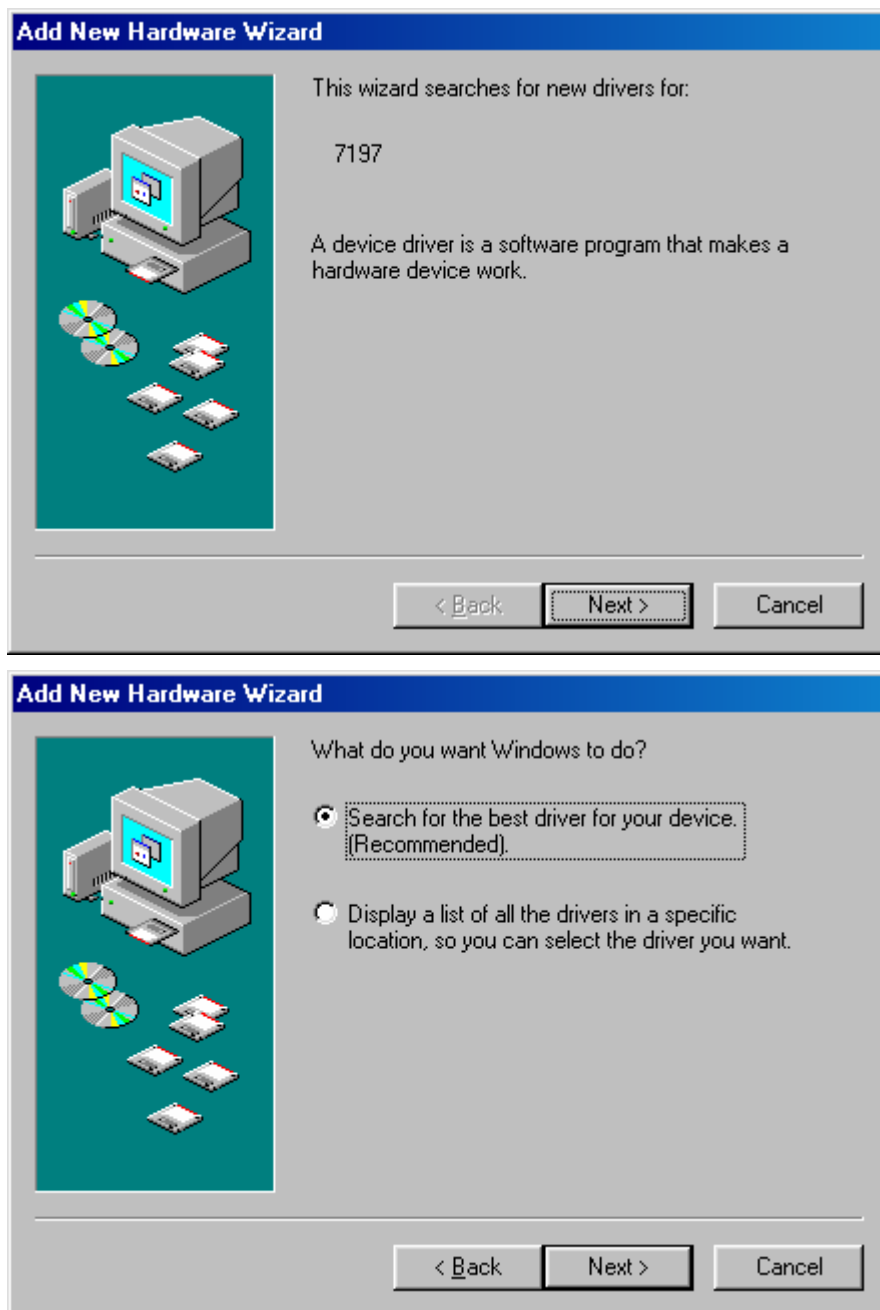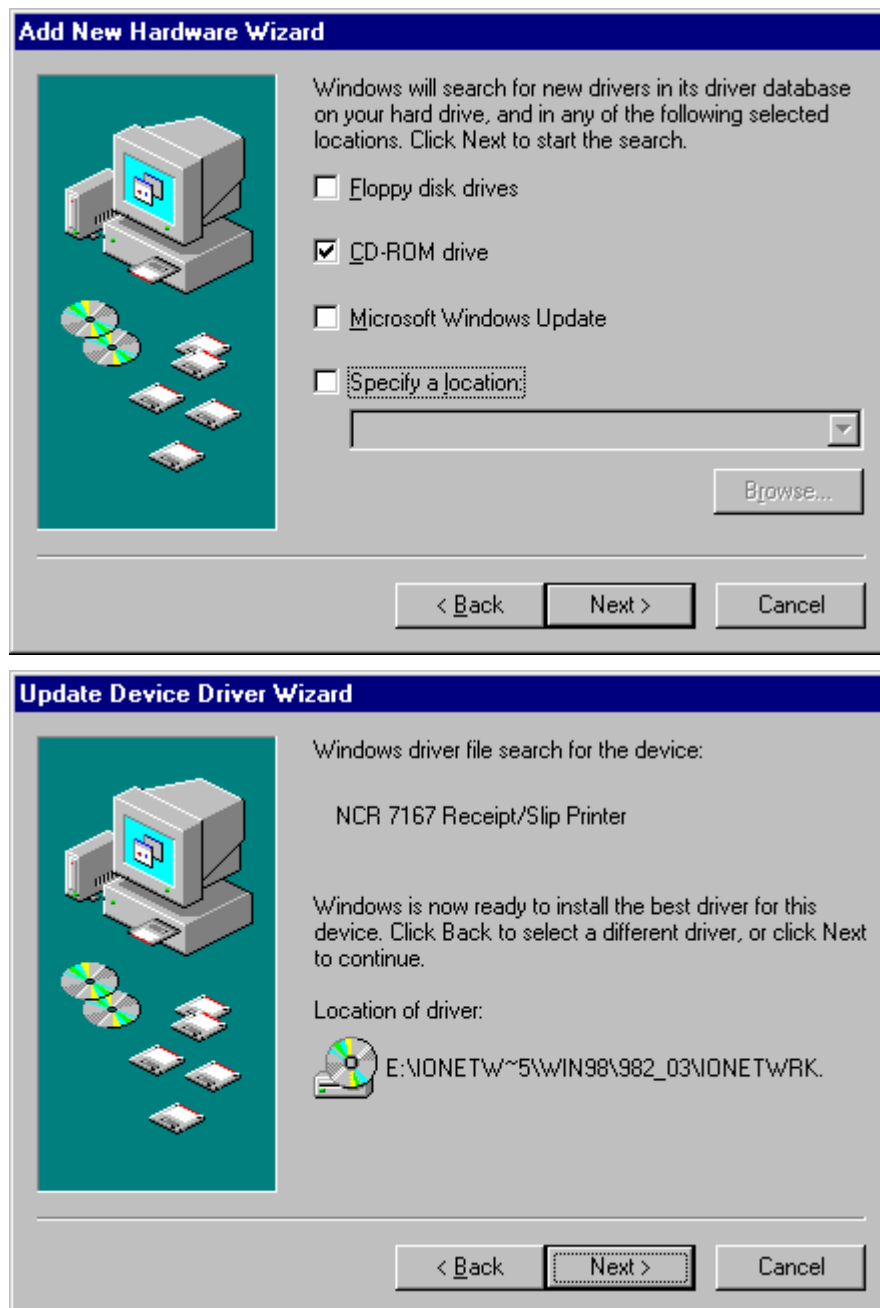
Note:  Location of the IONetworks files on the CD-ROM may very depending on the version of the CD that is being used.
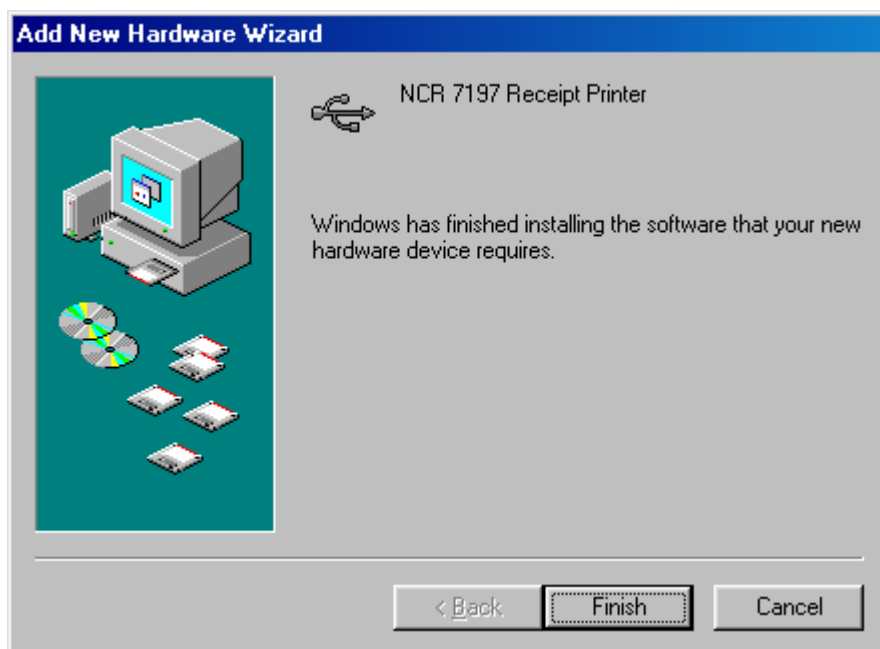
**Windows NT**

The printer beeps when it is plugged in to show the USB device is recognized.  Click on the file you downloaded and follow the on-screen instructions.

**Inside Out Networks' Edgeport Drivers Setup**

**Inside Out Networks' Software License**

Press the PAGE DOWN key to see the rest of the agreement.

Inside Out Networks Edgeport for NT 4.0
License Agreement

IMPORTANT - READ CAREFULLY:  This Inside Out Networks Edgeport License
Agreement ("Agreement") is a legal agreement between you (either an
individual or a single entity) and Inside Out Networks Incorporated
("IONETWORKS") for IONETWORKS' computer software and associated media
(collectively, the "Licensed Software").  By continuing to use the Licensed
Software, you agree to be bound by the terms of this Agreement.

Do you accept all the terms of the preceding License Agreement?  If you choose No, the
setup will close.  To install Inside Out Networks' Edgeport Drivers, you must accept this
agreement.

InstallShield

< Back    Yes    No

---

**Inside Out Networks' Edgeport Drivers Setup**

**Inside Out Networks' Release Notes**

Edgeport Drivers for Windows NT 4.0

================================================

The setup utility installs the following files:

usbd.sys
    USB host controller driver for UHCI and OHCI.

usbhub.sys
    Hub class driver for USB-compliant hubs.

InstallShield

< Back    Next >    Cancel

**Windows 2000**

Follow the on-screen instructions. The printer beeps when the USB device is recognized. Go to the location where you downloaded the drivers and double click the file.

**Found New Hardware Wizard**

**Install Hardware Device Drivers**
A device driver is a software program that enables a hardware device to work with an operating system.

This wizard will complete the installation for this device:

7197

A device driver is a software program that makes a hardware device work. Windows needs driver files for your new device. To locate driver files and complete the installation click Next.

What do you want the wizard to do?

◉ Search for a suitable driver for my device (recommended)

○ Display a list of the known drivers for this device so that I can choose a specific driver

[ < Back ]  [ Next > ]  [ Cancel ]

**Found New Hardware Wizard**

**Locate Driver Files**
Where do you want Windows to search for driver files?

Search for driver files for the following hardware device:

7167

The wizard searches for suitable drivers in its driver database on your computer and in any of the following optional search locations that you specify.

To start the search, click Next. If you are searching on a floppy disk or CD-ROM drive, insert the floppy disk or CD before clicking Next.

Optional search locations:
☐ Floppy disk drives
☑ CD-ROM drives
☐ Specify a location
☐ Microsoft Windows Update

[ < Back ]  [ Next > ]  [ Cancel ]

Note: Location of the IONetworks files on the CD-ROM may very depending on the version of the CD that is being used.

**Found New Hardware Wizard**

**Install Hardware Device Drivers**
A device driver is a software program that enables a hardware device to work with an operating system.

This wizard will complete the installation for this device:

Edgeport Serial Port_1 [Port-12]

A device driver is a software program that makes a hardware device work. Windows needs driver files for your new device. To locate driver files and complete the installation click Next.

What do you want the wizard to do?

⦿ Search for a suitable driver for my device (recommended)

○ Display a list of the known drivers for this device so that I can choose a specific driver

[ < Back ]  [ Next > ]  [ Cancel ]

---

**Found New Hardware Wizard**

**Locate Driver Files**
Where do you want Windows to search for driver files?

Search for driver files for the following hardware device:

Edgeport Serial Port_1 [Port-123]

The wizard searches for suitable drivers in its driver database on your computer and in any of the following optional search locations that you specify.

To start the search, click Next. If you are searching on a floppy disk or CD-ROM drive, insert the floppy disk or CD before clicking Next.

Optional search locations:
☐ Floppy disk drives
☑ CD-ROM drives
☐ Specify a location
☐ Microsoft Windows Update

[ < Back ]  [ Next > ]  [ Cancel ]

**Found New Hardware Wizard**

**Driver Files Search Results**
The wizard has finished searching for driver files for your hardware device.

The wizard found a driver for the following device:

Edgeport Serial Port_1 [Port-123]

Windows found a driver for this device. To install the driver Windows found, click Next.

e:\ionetworks\win2000\ionport.inf

[ < Back ]  [ Next > ]    [ Cancel ]

---

**Found New Hardware Wizard**

**Completing the Found New Hardware Wizard**

Edgeport Serial Port

Windows has finished installing the software for this device.

To close this wizard, click Finish.

[ < Back ]  [ Finish ]    [ Cancel ]

# Checking the Installation

You need to verify that the device drivers were installed correctly:

**Windows 98:**

1.  Open the Device Manager window, as you did in "Checking for USB Support."

2.  Scroll down to "Universal serial bus controllers."

The following devices should be displayed:

•       **NCR** 7197 Printer

•       **NCR** 7197 Serial Ports [Port#] (where the # is the location of the printer)
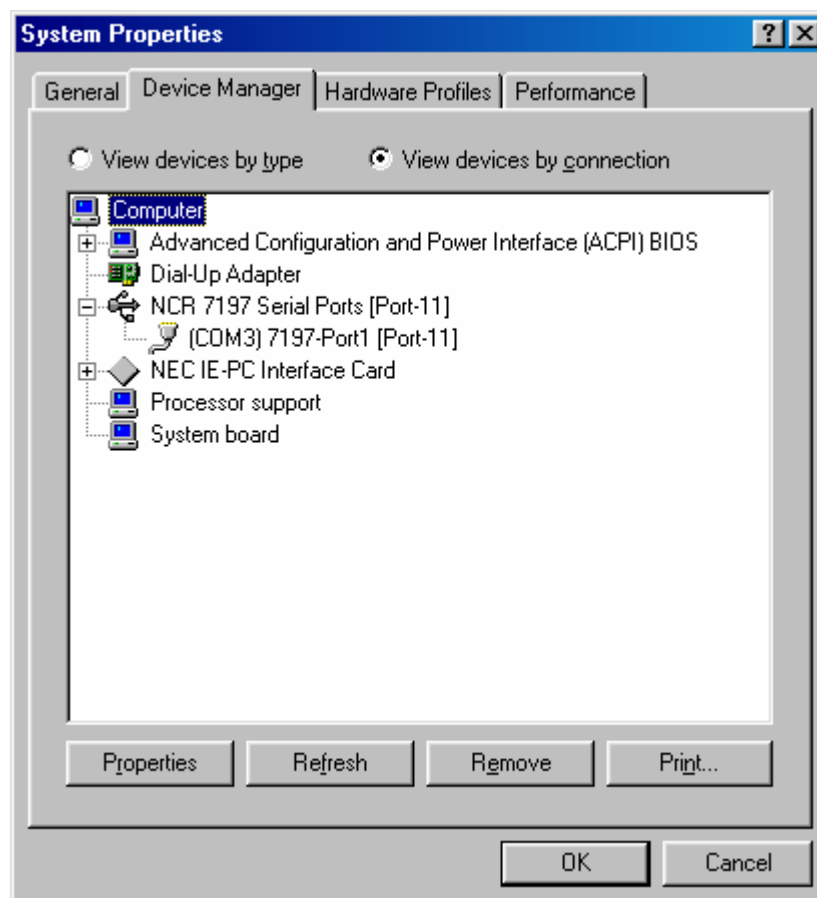


3.  Scroll back up to "Ports."

You should see a COM number and port description for the **NCR** printer.

If the devices are missing or are not listed correctly, the installation wasn't successful. You will need to reinstall the drivers.

**Windows NT:**

Go the Windows Start button and select Programs > InsideOut Networks Utilities > Edgeport Configuration Utility. A window opens that contains the name of the printer, and the port assignment.

If this information is not listed, then the installation was not successful. You will need to reinstall the drivers.
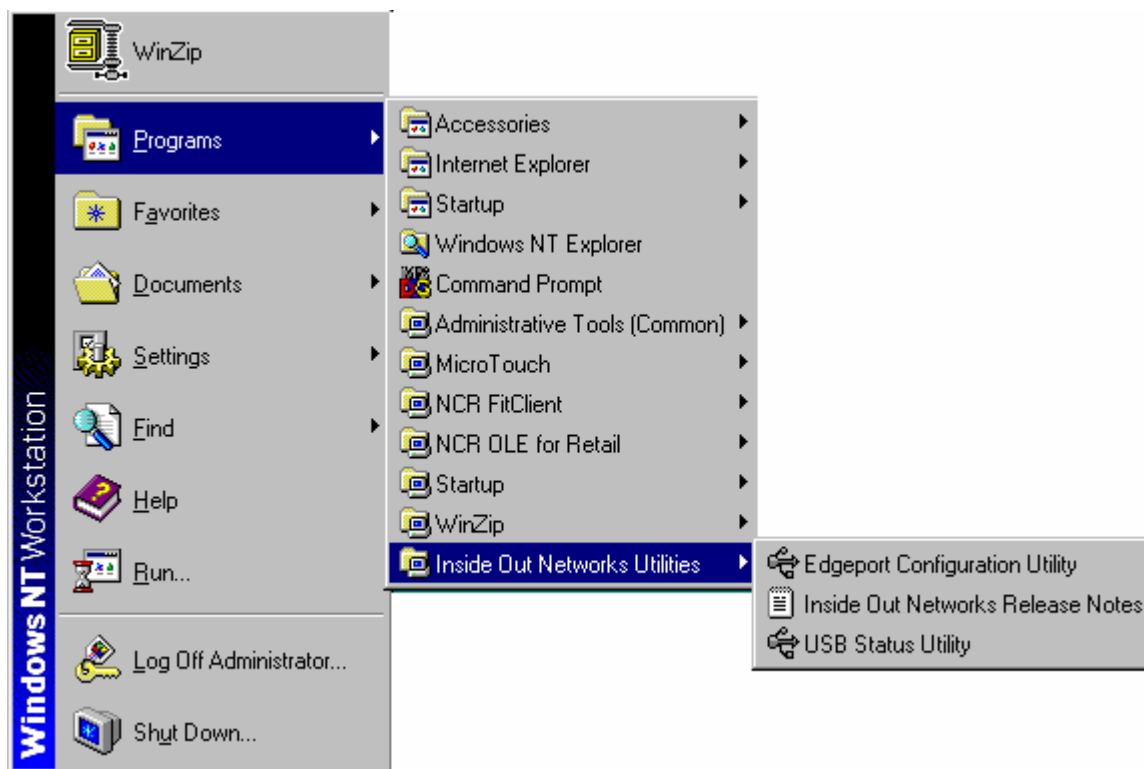


**Windows 2000:**

1.  Open the Device Manager window, as you did in "Checking for USB Support."
2.  Scroll down to "Universal serial bus controllers."
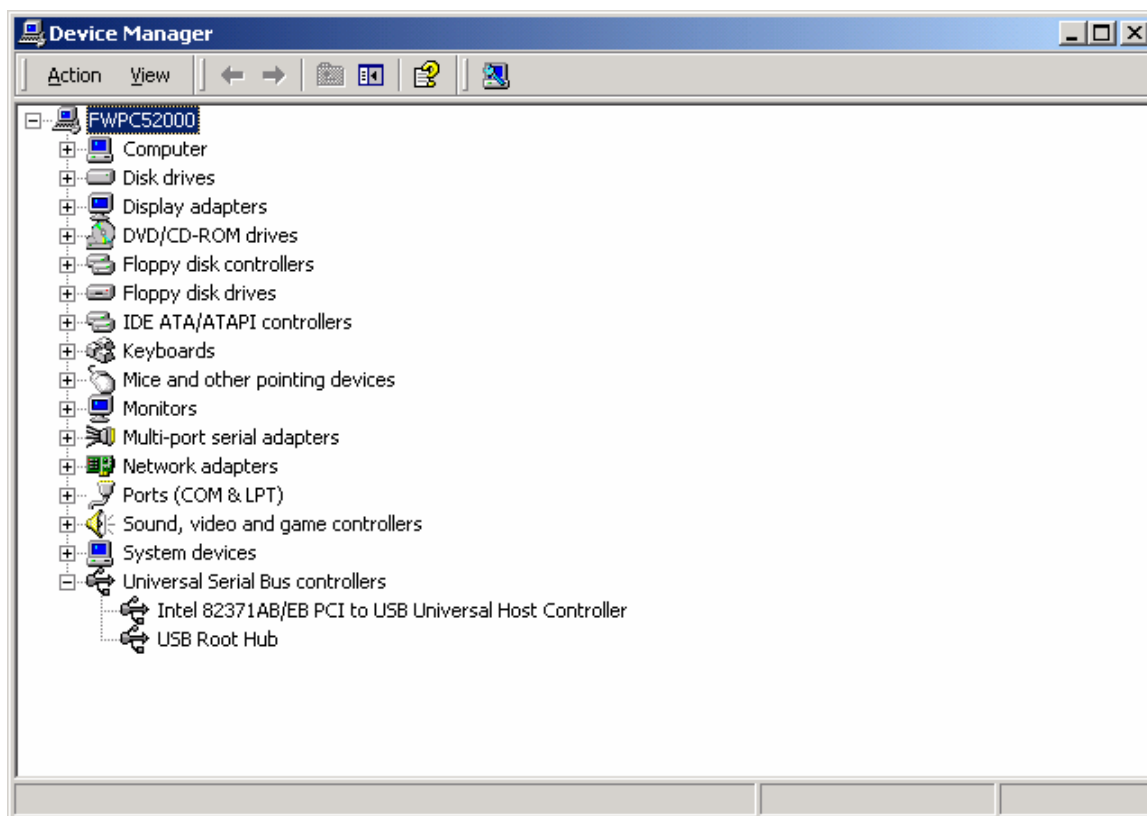
3.  Scroll back up to "Ports."

If the devices are missing or are not listed correctly, the installation wasn't successful. You will need to reinstall the drivers.

If this information is not listed, then the installation was not successful. You will need to reinstall the drivers.
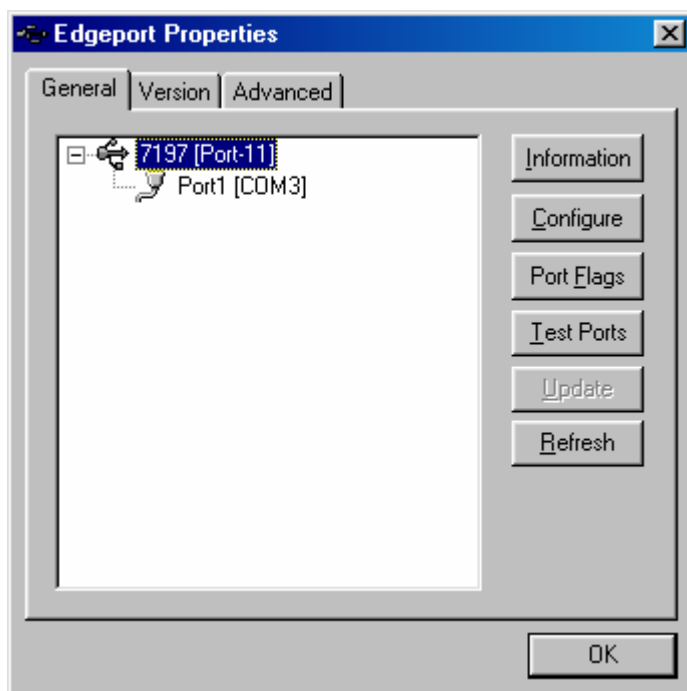
# Configuring Serial Port Number Assignments

This section described how the **NCR** USB solution assigns serial port numbers (e.g., COM*x*) to the printer. The information that determines the assigned port number is stored in the host computer and not in the printer. This assignment is made in one of three ways.  The first method is the default method that automatically assigns a serial port number to the printer.  The other two methods require the user to specify a port number. These methods are described more fully in "Serial Port Configuration Methods" on the following page.

### Running the Edgeport Utility

You'll need to run the Edgeport utility to check which serial port has been assigned to the printer. This utility queries and configures the operating system and driver for the information regarding the virtual serial port.

**Windows 98**

1.  Open the Device Manager and make sure "View Devices By Type" is selected.

2.  Scroll down to Universal serial bus controller, and expand the list by pressing the "+" symbol. You'll see two entries for your **NCR** printer.

3.  Select the printer name and click Properties.

4.  Select the Details tab, then press the Details button to start the Edgeport utility.

**Windows NT 4.0**

From the Windows Start menu, select Programs > Inside Out Networks Utilities > Edgeport Configuration Utility.

## Serial Port Configuration Methods

**Automatic (Default)**. When the printer is plugged into the USB port of the host and the drivers are loaded, the printer will default to the next available serial port number. In many cases this is exactly what is desired. You can check the assigned serial port by clicking the General tab in the Edgeport utility. You'll see an entry for the NCR printer. Expand the list to see which serial port has been assigned to the printer.

**Assigning a serial port to the printer.** If the default assignment does not meet the requirements of the installation, you can assign a different serial port to the printer. From the General tab of the Edgeport utility, select the printer and press Configure. Follow the directions on the resulting form to assign a new port to the printer.

**Associating a serial port with a specific USB port.** (Windows 98 and NT) In certain installations it is desirable to associate a serial port number with a specific USB port. This is particularly important if multiple identical printers are installed on one host. Select the Advanced tab in the Edgeport utility, and follow the instructions for configuring the serial port number based on the physical USB port.

## Uninstalling the Drivers
**Windows 98:**

1. Open the Device Manager and make sure "View Devices By Type" is selected.
2. Scroll down to Universal serial bus controller, and expand the list by pressing the "+" symbol. You'll see two entries for your NCR printer.
3. Select the printer name and click Properties.
4. Select the Details tab, then press the Details button to start the Edgeport utility.
5. Click the Advanced tab.
6. Click the Uninstall button and follow the on-screen instructions.

```
┌─ Edgeport Properties ─────────────────────── ×─┐
│                                                 │
│  ┌─General─┬─Version─┬─Advanced─┐               │
│  │                                              │
│  │ ┌──────────────────────────┐  ┌────────────┐ │
│  │ │WARNING: Pressing the     │  │  Uninstall │ │
│  │ │Uninstall button will     │  └────────────┘ │
│  │ │remove the Edgeport device│                 │
│  │ │drivers from              │                 │
│  │ │your system!              │                 │
│  │ └──────────────────────────┘                 │
│  │                                              │
│  │ ┌─COM Port Assignment──────────────────────┐ │
│  │ │ ⦿ Based on converter serial number.       │ │
│  │ │   (Default)                              │ │
│  │ │ ○ Based on physical USB port.            │ │
│  │ │                                          │ │
│  │ │ You must reboot before these  ┌──────────┐│ │
│  │ │ settings can take effect.     │Tell Me More...││ │
│  │ │                               └──────────┘│ │
│  │ └──────────────────────────────────────────┘ │
│  │                              ┌────────────┐   │
│  │                              │     OK     │   │
│  │                              └────────────┘   │
│  └──────────────────────────────────────────────┘
└─────────────────────────────────────────────────┘
```
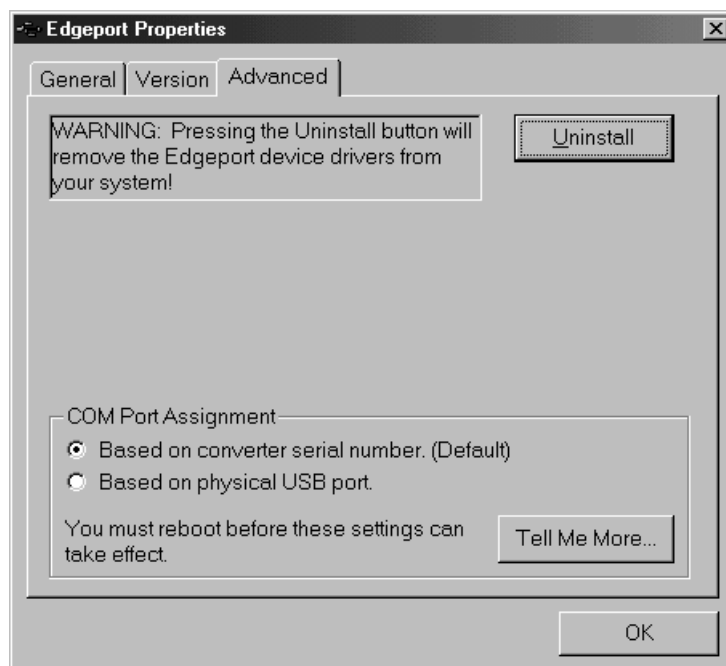
**Windows NT:**

Windows NT users will need to run the Edgeport Configuration Utility to uninstall the drivers.

1.  Press Windows Start Menu button.

2.  Choose Programs, then Inside Out Networks Utilities.

3.  Choose Edgeport Configuration Utility.

4.  Click the Advanced tab.

5.  Click the Uninstall button and follow the on-screen instructions.

**Windows 2000:**

1.  Open the Device Manager and make sure "View Devices By Type" is selected.

2.  Scroll down to Universal serial bus controller, and expand the list by pressing the "+" symbol. You'll see two entries for your NCR printer.

3.  Select the printer name and click Properties.

4.  Select the Details tab, then press the Details button to start the Edgeport utility.

5.  Click the Advanced tab.

6.  Click the Uninstall button and follow the on-screen instructions.

# Using the Printer
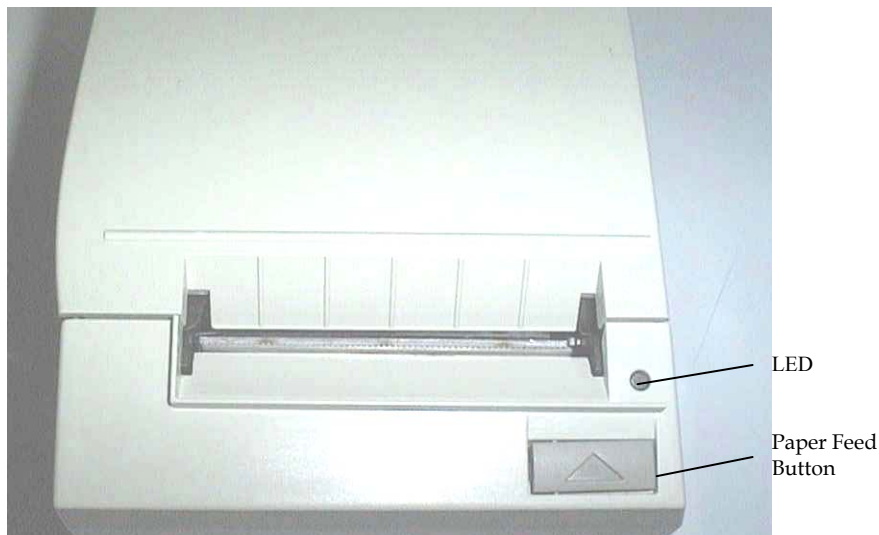


**Note:** See "Setting Switches" earlier in this book for instructions on setting the DIP switches.

1.  Connect the power supply to the printer and turn on the power source.

    The printer goes through a self-test routine to ensure everything is working properly then "beeps." After the printer has completed its "startup" cycle, it is ready to receive data.

    If the LED blinks, or the host computer indicates that there is a problem, see "Chapter 3: Solving Problems" for more information.

2.  To perform a Configuration check (optional), reset the printer while holding the Paper Feed Button, or open the receipt door and while pressing the paper feed button close the receipt door, let go of the Paper Feed Button once the printing begins.

**Note:** The printer receives power when the power supply is on even if the printer is off-line. To completely remove power, unplug the power supply from the outlet, or turn the POS terminal off.

# Loading and Changing the Receipt Paper

Although the illustrations show a used roll being removed, the instructions apply to loading paper for the first time.

Change the paper when either of the following two conditions occurs:

- LED blinks (slow): the paper is low

  There are approximately 1 ½ to 7 ½ meters (5-25 feet) of paper remaining on the roll. Change the paper as soon as possible to avoid running out part way through a transaction.

  Depending on the application program, the host computer may alert you when the paper is low.

- LED blinks (fast): the paper is out

  Change the paper immediately or data may be lost.

**Caution:** Do not operate the printer or host computer if the printer runs out of paper. The printer will not operate without paper, but it may continue to accept data from the host computer. Because the printer cannot print any transactions, the data may be lost.

## Removing the Paper Roll

1. Open the receipt cover.

2. Remove the used roll.

Receipt
cover
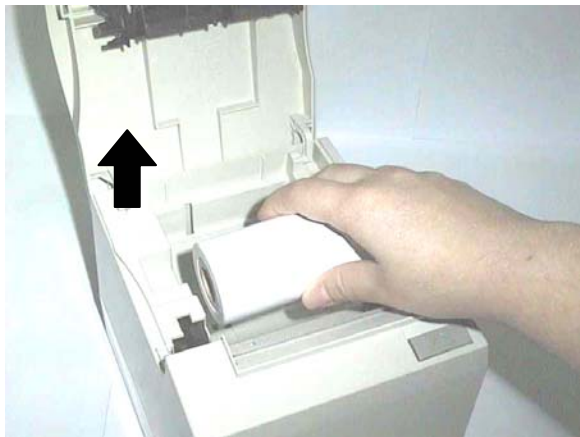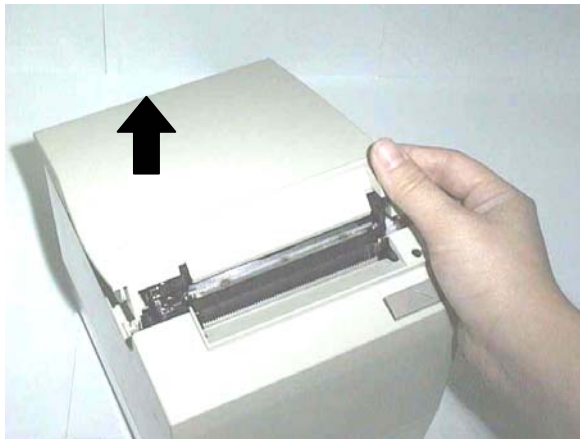
## Loading the Paper Roll

**Note:** Tear off the end of the new roll so that the edge is loose.

1. Place the new roll in the bin with a little extra paper extending over the front.

   Be sure the paper unrolls from the bottom of the roll. Otherwise the paper will not be printed on because the thermal coating will be on the wrong side.

2. Close the receipt cover.

3. Remove the excess paper by tearing it against the tear-off blade.
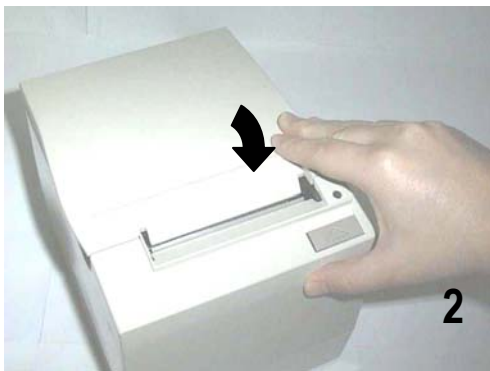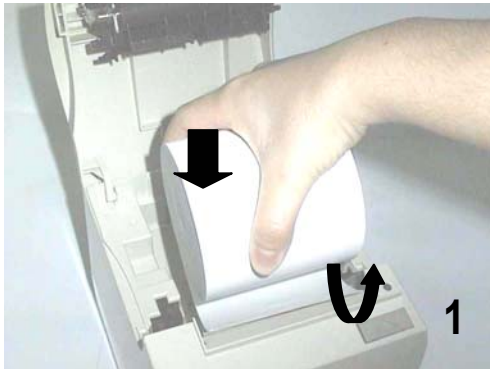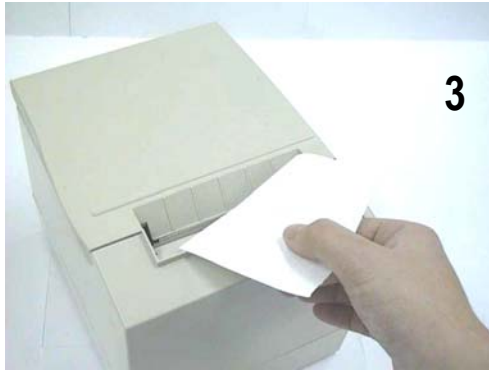
## Advancing Paper

1. Press the Paper Feed button on the operator panel to advance the paper.

   The cover must be closed. To ensure print quality and the proper alignment of the paper, advance about 30 cm (12 inches) of paper.

2. Tear off the excess paper against the tear-off blade.

# Chapter 3: Solving Problems

The 7197 printer is a simple, generally trouble-free printer, but from time to time minor problems may occur. For example, the power supply may be interrupted or the thermal print head may overheat.

A green LED on the operator panel signals that something may be wrong.

For some problems, the printer communicates the information to the host computer and relies on the application to indicate what the problem is.

The information on the following pages describes some problems that you may encounter: problems that you can easily fix, and others that you will need to contact a service representative for.

You may be able to correct many of the conditions or problems without calling for service. However, if a problem persists, contact a service representative. See "Contacting a Service Representative" at the end of this chapter.

# Green LED Does Not Come On/Printer Will Not Print

| Problem | What to Do | Where to Go |
| --- | --- | --- |
| Cables may not be connected properly | Check all cable connections. Check that the host computer and power supply are both on (the power supply is turned on by plugging it into an outlet). | See "Connecting the Cables" in chapter 2. |
| Power supply may be defective | If the power supply is plugged in, but does not come on, you will need to order a new power supply. | See "Ordering Other Supplies" in chapter 1. |

# Green LED Blinking (Slow)

| Problem | What to Do | Where to Go |
| --- | --- | --- |
| Receipt paper is low* | There are about 4 ½ meters, ± 3 meters, (15 feet, ± 10 feet) of paper left. Change the paper soon to avoid running out of paper part way through a transaction. | See "Loading and Changing the Receipt Paper" in chapter 2. |

# Green LED Blinking (Fast)

| Problem | What to Do | Where to Go |
| --- | --- | --- |
| Receipt paper is out | Change the paper now. Do not run a transaction without paper as the data may be lost. | See "Loading and Changing the Receipt Paper" in chapter 2. |
| Receipt cover is open | Close the cover. The printer will not operate with the cover open. | |
| Knife failure | Open the receipt cover and check the knife. Clear any jammed paper you can see. Tear off any excess paper against the tear-off blade. | |
| | Contact a service representative if this does not resolve the problem. | See "Contacting a Service Representative" later in this chapter. |
| AC supply voltage is out of range | If paper is not low and no conditions indicate that the thermal print head is too hot, then it is likely that the power supply voltage is out of range. | |
| | Contact a service representative if this does not resolve the problem. | See "Contacting a Service Representative" later in this chapter. |

| | | |
|---|---|---|
| Thermal print head temperature is out of range | The print head may overheat when printing in a room where the temperature is above the recommended operating temperature or when printing high-density graphics continuously, regardless of the room temperature. In either case, the printer will shut off. | See "Environmental Conditions" in Appendix A for the recommended temperature range for operating the printer. |
| | If the temperature of the print head is too hot, adjust the room temperature or move the printer to a cooler location. | |
| | If the print head is overheating because of printing high density graphics continuously, reduce the demand on the printer. | |
| | If the printer continues to overheat, contact a service representative. | See "Contacting a Service Representative" later in this chapter. |
| Power supply voltage is out of range | If paper is not low and no conditions indicate that the print head is too hot, the power supply voltage is out of range. Contact a service representative. | See "Contacting a Service Representative" later in this chapter. |

# Receipt Printing is Light or Spotty

| Problem | What to Do | Where to Go |
|---|---|---|
| Thermal print head may be dirty | Open the receipt cover and clean the thermal print head with cotton swabs and isopropyl alcohol. | See "Cleaning the Printer" in chapter 2. |
| | **Caution:** Do not use the alcohol to clean other parts of the printer. Damage will occur. | See "Contacting a Service Representative" later in this chapter. |
| | Contact a service representative if this does not resolve the problem. | |
| | **Note:** The thermal print head does not normally require cleaning if the recommended paper grades are used. If non-recommended paper has been used for an extended period of time, cleaning the print head with the alcohol and cotton swabs will not be of much benefit. See "Ordering Thermal Paper" in chapter 1 for recommended paper. | |

# Other Serious Problems

The following problems all need to be corrected by a qualified service representative. See the next section, "Contacting a Service Representative."

- Printer will not cycle or stop when required
- Illegible characters
- Paper will not feed
- Knife will not cycle or cut
- Printer will not communicate with Host

# Contacting a Service Representative

For serious problems, such as the printer not printing, not communicating with the host computer, or not turning on, contact your NCR-authorized service organization to arrange for a service call. In addition to the service guide listed below, other service-related materials may be available. Contact your NCR-authorized service representative to obtain the service guide.

- *7197 Thermal Receipt Printer: Service Manual* (B005-000-1410)
  (includes the Troubleshooting Guide and the Preventative Maintenance Guide)
- *7197 Thermal Receipt Printer: Parts Identification Manual* (B005-000-1411)
- *7197 Thermal Receipt Printer: Owners  Manual* (B005-000-1409)

# Chapter 4: Diagnostics

---

The following diagnostic tests are available for the 7197:

- Level 0 Diagnostics (Startup)
  Performed during the startup cycle.

- Level 1 Diagnostics (Printer Configuration)
  Allows configuration of the printer using a Configuration Menu that is printed on a receipt.

- Level 2 Diagnostics (Runtime)
  The printer checks the status of these conditions during normal operation.

- Level 3 Diagnostics (Remote)
  The printer keeps track of counters during normal operation.

- Vendor Adjustment
  Performed in off-line mode. Allows to change settings for mechanical and perform printer test. Modifications of these settings are to be made by service personnel only.

## Level 0 Diagnostics

The printer automatically performs level 0 diagnostics when it is put on-line. Level 0 diagnostics comprise the following actions:

- Motors are turned off.

- Microprocessor timing is checked, CRC check of the firmware ROM is performed, external RAM is read.
  - The green LED flashes once if this action succeeds.
  - Level 0 diagnostics stop if this action fails. Failure is indicated by the printer going dead: knife and print head do not home, LEDs are not lit, the printer is unable to communicate with the host computer.

- Knife is homed. A fault condition is caused if this action fails.

- The status of all sensors is checked, and the status bytes are updated.

If the printer has not been turned on before the default values for the printer functions will be loaded into the non volatile memory during level 0 diagnostics. These values can be changed in level 1 diagnostics. See "Level 1 Diagnostics" for the functions and their settings.

When the last step is complete, the Paper Feed button is enabled and the printer is ready for normal operation. Information about the tests is available to the communication interface through the commands.

# Level 1 Diagnostics

Level 1 diagnostics (setup mode) allow you to change the settings for various printer functions and run certain tests.

Keep the following information in mind when changing the settings:

- The settings can only be changed when the printer is in level 1 diagnostics (setup mode): Switch 1 must be set to On and Switch 2 must be set to Off.
- The default options are set at the factory and are stored in the history non volatile memory.
- Once the settings have been changed and stored in the non volatile memory, the diagnostic setup is exited which saves the settings.

**Caution:** If you are changing the printer settings, be sure they are the correct settings for that particular function or test to avoid accidentally changing the settings for another function or test. If the settings are accidentally changed you must reenter the setup mode and reenter the correct settings. If you need assistance, contact a service representative. See "Contacting a Service Representative" in chapter 3.

## Printer Configuration

Printers are generally shipped with all appropriate configuration settings pre-set at the factory. The only time the user should need to change the printer configuration is if a new option is installed, communication baud rate or the firmware is changed. It is also possible the user may need to run certain tests using the Configuration Menu.

The user configures the printer using a convenient Configuration Menu that is printed on receipt paper. The Configuration Menu prints instructions and setting options interactively as the user goes through the configuration process. The following functions and parameters can be changed with the scrolling Configuration Menu:

- **Configuring the Printer**
- **Communication Interface**
  - Interface Type
  - Baud Rate
  - Number of Data Bits
  - Number of Stop Bits
  - Parity
  - Flow Control
  - Data Reception Errors
  - Receive Buffer
- **Setting Diagnostic Modes**
  - Off, Normal Mode
  - Datascope Mode
  - Receipt Test Mode

- **Setting Emulation/Software Options**
  - Emulation
  - Printer ID
  - Default Lines Per Inch
  - Carriage Return Usage
  - Asian Mode
  - Receipt Synchronization
- **Setting Hardware Options**
  - Print Density
  - Maximum Power Option
  - Paper Low Sensor
  - Paper Width
  - Set Knife Option
  - Color Paper Option
- **Setting Default Code Page**
- **Setting EEPROM to default settings**

## Configuring the Printer

Use the Configuration Menu to select functions or change various settings as indicated in the preceding sections. The Configuration Menu prints instructions and setting options interactively as the user goes through the configuration process.

**Caution:** Be extremely careful in changing any of the printer settings to avoid changing settings that might affect the performance of the printer.



Bottom Cover

DIP Switch

2  1   ON

Switch 1 is shown in the OFF position
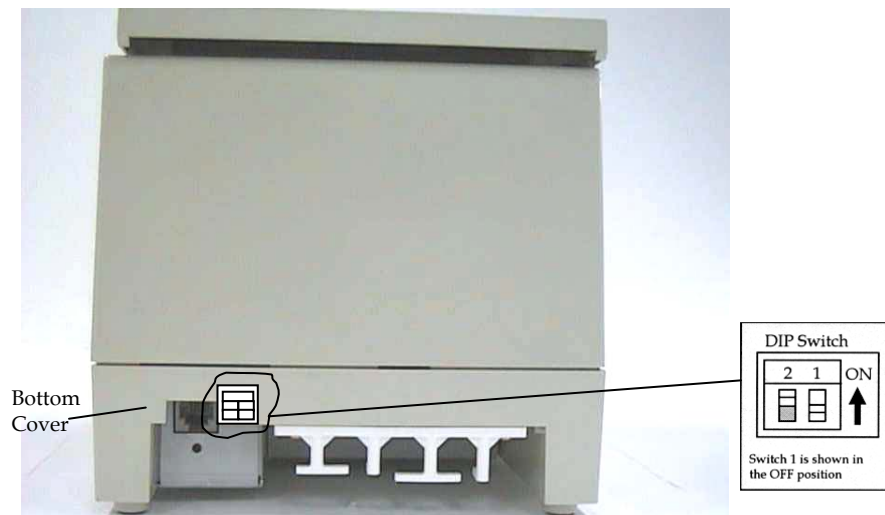
1. Set DIP Switch 1 to On, Switch 2 to Off.

2. Reset the printer while holding the Paper Feed Button, the printer will print the current configuration, then cuts the paper to print the Configuration Menu.

Press the paper feed for the configuration you want.

Defaults are marked with asterisk (*).

**\*\*\*\*\*\*\*\* Main Menu \*\*\*\*\*\*\*\***
**\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\***

Select a sub-menu:
  - EXIT                                      -> 1 Click
  - Print Current Configuration      -> 2 Clicks
  - Set Communication Interface     -> 3 Clicks
  - Set Diagnostics Modes            -> 4 Clicks
  - Set Emulation/Software Options   -> 5 Clicks
  - Set Hardware Options              -> 6 Clicks
  - Set Default Code page             -> 7 Clicks
  - Set EEPROM To Default Settings   -> 8 Clicks

Enter code, then hold Button DOWN
at least 1 second to validate

**\*\*\* Diagnostics Form \*\*\***

| | | |
|---|---|---|
| Model number | : | 7197 |
| Serial number | : | A991703053 |

Boot Firmware
| | | |
|---|---|---|
| Revision | : | V00.17 |
| CRC | : | 9592 |

Flash Firmware
| | | |
|---|---|---|
| Revision | : | V01.36 |
| CRC | : | 17A5 |

Hardware
| | | |
|---|---|---|
| Flash Memory Size | : | 2Mbytes |
| Flash Logos Size | : | 256Kbytes |
| Flash Fonts Size | : | 64Kbytes |
| Flash User Storage | : | 64Kbytes |

Communication Interface
| | | |
|---|---|---|
| Interface Type | : | RS232/USB |
| Parameters | | |
| Baud Rate | : | 9600 |
| Data Bits | | 8 |
| Stop Bits | : | 1 |
| Parity | : | None |
| Flow Control | : | DTR/DSR |
| Reception Errors | : | Print '?' |
| Receive Buffer | : | 4K bytes |

| | | |
|---|---|---|
| Diagnostic Mode | : | OFF, Normal Mode |

Emulation/Software
| | | |
|---|---|---|
| Printer Emulation | : | 7194 Native Mode |
| Printer ID Mode | : | 7194 Native ID |
| Default LPI | : | 7.52 |
| Carriage Return | : | Used as Print Cmd |

To enter Printer Configure Menu:
3) Flip DIP switch #1 on
4) Reset the printer by pressing and holding receipt feed switch down while disconnecting and reconnecting the power.

**\*\*\* Printer Config Menu \*\*\***

The config menu allows you to set general printer parameters. Sub-menus are entered and selections are made using the Paper Feed Button:

- Short Click : Feed Button is quickly depressed then released.

- Long Click : Feed Button is held Down more than 1sec then released.

**CAUTION !!**
The settings are predetermined in factory and should generally not be changed to avoid changing other functions.
\*\*\*\*\*\*\*\*\*\*\*\*\*

\*\*\*\*\*\*\*\*\*\*\*\*\* **Main Menu** \*\*\*\*\*\*\*\*\*\*\*\*\*
\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

Select a sub –menu:
| | |
|---|---|
| - EXIT | 1 Click |
| - Print Current Configuration | 2 Clicks |
| - Set Communication Interface | 3 Clicks |
| - Set Diagnostics Modes | 4 Clicks |
| - Set Emulation/Software | 5 Clicks |
| - Set Hardware Options | 6 Clicks |
| - Set Default Code Page | 7 Clicks |
| Set EEPROM To Default | 8 Clicks |

Enter code, then hold Button DOWM at least 1 second to validate

**Important**: Ensure that the configuration settings match your host computer, if not, enter the Configuration Menu to make changes.

**Configuration Menu** and **Print Test** samples (show approximately 60% of size).

4.  Press the Paper Feed Button to make the selections.

    The instructions indicate whether to select something with a short click, a long click, or a series of short clicks. Indicate Yes with a long click, No with a short click.

    Press and hold the Paper Feed Button for at least one second for a long click. Press the Paper Feed Button quickly for a short click.

5.  When finished, set DIP Switch 1 to Off and reset printer.

# Communication Interface Modes

The Configuration Menu gives the user the option of setting the printer to use an RS-232C serial port. (See "Configuring the Printer" for instructions on how to enter the Configuration Menu.)

## RS-232C Interface Settings

If the user sets the printer to use an RS-232C serial interface, the Configuration Menu can be used to set the following RS-232C specific settings:

*   Set a baud rate 115200, 57600, 38400, 19200, 9600, 4800, 2400, or 1200 baud

*   Set the number of data bits to seven or eight

*   Set the number of stop bits to one or two

*   Enable or disable parity

*   Set flow control to software (XON/XOFF) or Hardware (DTR/DSR)

*   Set the printer to ignore data errors or print a "?" upon encountering an error

The settings used will depend on the software the operator is using and the capabilities of the host computer.

Press the paper feed buton for the communications settings you want.

Defaults are marked with asterisks (*).

**\*\* SET INTERFACE TYPE ?**
    YES        -> Long Click
    NO         -> Short Click

    RS232/USB*       -> 1 Click
    RS232            -> 2 Clicks
    USB              -> 3 Clicks
    Enter code, then hold Button Down
    At least 1 second to validate

**\*\* SET BAUD RATE ?**
    YES        -> Long Click
    NO         -> Short Click

    115200 Baud    -> 1 Click
     57600 Baud    -> 2 Clicks
     38400 Baud    -> 3 Clicks

19200 Baud    -> 4 Clicks
More              -> 5 Clicks
Enter code, then hold Button DOWN
At least 1 second to validate


9600 Baud* -> 1 Clicks
4800 Baud  -> 2 Clicks
2400 Baud  -> 3 Clicks
1200 Baud  -> 4 clicks
Enter code, then hold Button DOWN
At least 1 second to validate

## ** SET NUMBER OF DATA BITS ?
YES     -> Long Click
NO      -> Short Click

8 Data Bits*     -> Long Click
7 Data Bits      -> Short Click

## ** SET NUMBER OF STOP BITS ?
YES     -> Long Click
NO      -> Short Click

1 Stop Bits*     -> Long Click
2 Stop Bits      -> Short Click

## ** SET PARITY ?
YES    -> Long Click
NO     -> Short Click

No Parity*        -> 1 Click
Even Parity      -> 2 Clicks
Odd Parity       -> 3 Clicks
Enter code, then hold Button DOWN
At least 1 second to validate

## ** SET FLOW CONTROL METHOD ?
YES    -> Long Click
NO     -> Short Click

Software (XON/XOFF) -> Long Click
Hardware (DTR/DSR)* -> Short Click

## ** SET DATA RECEPTION ERRORS OPTION ?
YES    -> Long Click
NO      -> Short Click

Ignore Errors    -> Long Click
Print '?'*          -> Short Click

**Note:** Press the Paper Feed Button for at least one second to validate the selection.

### Receive Buffer Size Option

This function allows the user to set the buffer size to a single line  or a 4 K buffer.

Press the Paper Feed Button for the option you want.

**\*\* SET RECEIVE BUFFER SIZE ?**
YES          -> Long Click
NO           -> Short Click

4K Buffer*           -> Long Click
One Line             -> Short Click

   **Note:** Press the Paper Feed Button for at least one second to validate the selection.

### Save Parameters

This function allows to save the selected communication settings or return to the communication settings to select additional options.

Press the Paper Feed Button for the option you want.

**Save new parameters ?**

YES                  -> Long Click

NO, MODIFY       -> Short Click

# Diagnostic Modes

This function allows the user to put the printer into the following diagnostic modes:

   OFF, Normal Mode: this is the normal operating mode of the printer.

   Datascope Mode: the receipt printer prints incoming commands and data in hexadecimal format.

   Receipt Test Mode: the receipt printer prints two code pages.

The diagnostic modes are enabled or disabled by using the Configuration Menu. See "Configuration the Printer," for instructions on how to enter the Configuration Menu.

Press the Paper Feed Button for the diagnostic mode you want.

**\*\* SET DIAGNOSTICS MODE ?**
   YES     -> Long Click
   NO      -> Short Click

   OFF, Normal Mode*       -> 1 Click
   Data Scope Mode         -> 2 Clicks
   Receipt Test Mode       -> 3 Clicks
   Enter code, then hold Button DOWN
   At least 1 second to validate


   Enter code, then hold Button DOWN
   At least 1 second to validate

## Datascope Mode

Datascope Mode allows the user to test the printer's communications. When in Datascope Mode the printer receives all communications, but instead of executing the commands it prints them out on receipt paper as hexadecimal numbers in the order received. For example, the ASCII character "A" is printed as the hexadecimal number 41 an so on.

To run the Datascope Mode:

1.  After you have enabled the Datascope Mode through the Configuration Menu, exit the Configuration Menu.

2.  Run a transaction from the host computer.

    All commands and data sent from the host computer will be printed as hexadecimal numbers as shown in the illustration.

```
30 31 32 33 34 35 36 37 38 39 40 41        :        0 1 2 3 4 5 6 7 8 9 @ A
41 42 43 44 45 46 47 48 49 50 51 52        :        A B C D E F G H I J K L
```

To exit the Datascope Mode:

1.  Enter the Configuration Menu again

2.  Disable the Datascope Mode

3.  Exit the Configuration Menu

The printer is in Normal Mode and can communicate with the host computer.

## Receipt Test Mode

To run the Receipt Test Mode:

1.  Enable the Receipt Test Mode through the Configuration Menu. See "Configuring the Printer," for instructions on how to enter the Configuration Menu.

2.  Push Paper Feed Button and the receipt station will print all code pages.

3.  The test ends with a cut.

4.  Go to step 2 again to repeat this test.

To exit the Receipt Test Mode:

1.  Enter the Configuration Menu again.

2.  Disable the Receipt Test Mode

3.  Exit the Configuration Menu

The printer is in Normal Mode and can communicate with the host computer.

### Save Parameters

This function allows to save the selected diagnostics modes or return to the diagnostics mode to select additional options.

Press the Paper Feed Button for the option you want.

### Save Parameters

This function allows to save the selected communication settings or return to the communication settings to select additional options.

Press the Paper Feed Button for the option you want.

**Save new parameters ?**

YES                -> Long Click

NO, MODIFY    -> Short Click

## Emulation/Software Options

### Printer Emulations

Printer emulations determine the commands that are available to the printer. They are set by using the Configuration Menu. (See "Configuring the Printer," for instructions on how to enter the Configuration Menu.). The available options are:

- 7194 Mode
- 7193 Mode
- 7197 Native Mode

Press the Paper Feed Button for the emulation you want.

**\*\* SET EMULATION ?**
YES       -> Long Click
NO        -> Short Click

  7194 Mode*           -> 1 Click
  7193 Mode            -> 2 Click
  7197 Mode            -> 3 Click
  Enter code, then hold Button DOWN
  At least 1 second to validate

**Note**: Press the Paper Feed Button for at least one second to validate the selection.

### Printer ID Selections

Printer ID Selections determines the print ID that is returned from the printer. This is set by using the Configuration Menu. (See "Configuring the Printer," for instructions on how to enter the Configuration Menu.). The available options are:

- 7197 Native ID
- Emulated Print ID
- 7197 Native ID

Press the Paper Feed Button for the emulation you want.

**\*\* SET PRINTER ID MODE ?**
YES        -> Long Click
NO         -> Short Click

  7194 Native ID*              -> 1 Click
  Emulated Printer ID        -> 2 Clicks
  7167 Native ID             -> 3 Clicks
  Enter code, then hold Button DOWN
  At least 1 second to validate

  **Note**: Press the Paper Feed Button for at least one second to validate the selection

## Default Lines Per Inch

This function allows the user to set the default lines per inch printed by the thermal printer to 6, 7.52 or 8.13. (See "Configuring the Printer" for instructions on how to enter the Configuration Menu to change this setting.)

Press the Paper Feed Button for the lines per inch you want.

**\*\* SET DEFAULT LINES PER INCH ?**
  YES        -> Long Click
  NO         -> Short Click

  8.13 Lines per Inch        -> 1 Click
  7.52 Lines per Inch*       -> 2 Clicks
  6 Lines per Inch           -> 3 Clicks
  Enter code, then hold Button DOWN
  At least 1 second to validate

**Note:** Press the Paper Feed Button for at least one second to validate the selection.

## Carriage Return Usage

This function allows the printer to ignore or use the Carriage Return (hexadecimal 0D) command depending on the application. Some applicatons expect the command to be ignored while others use the command as a print command. (See "Configuring the Printer" for instructions on how to enter the Configuration Menu to change this setting.)

Press the Paper Feed Button for the carriage return usage you want.

**\*\* SET CARRIAGE RETURN USAGE ?**
YES        -> Long Click
NO         -> Short Click

Ignore CR                  -> Long Click
Use CR as Print Cmd*       -> Short Click

Note: Press the Paper Feed Button for at least one second to validate the selection.

## Asian Mode

This function makes it possible for the user to select an Asian character for the printer. (See "Configuring the Printer" for instructions on how to enter the Configuration Menu to change this setting.)

**Note:**  For Asian code pages, only one (either 932, 936, 949 or 950) will exist in the firmware.


Press the Paper Feed Button for the asian mode you want.

**\*\* SET ASIAN MODE ?**
YES          -> Long Click
NO           -> Short Click

Asian Mode On     -> Long Click
Asian Mode Off\*   -> Short Click

Note: Press the Paper Feed Button for at least one second to validate the selection.


## Receipt Synchronization Mode

The standard mode for synchronization allows for verification of each line printed to the host.  When the receipt synchronization is disabled the printer will allow for maximum print speed and ignore the verificaiton of each line printed.


Press the Paper Feed Button for the receipt synchronization mode option you want.

**\*\* SET RECEIPT SYNCHRONIZATON  MODE ?**
YES          -> Long Click
NO           -> Short Click

Enable  Receipt Sync.\*      -> Long Click
Disable Receipt Sync.       ->Short Click
Note: Press the Paper Feed Button for at least one second to validate the selection.


## Save Parameters

This function allows to save the selected emulations/software settings or return to the emulations/software settings to select additional options.


Press the Paper Feed Button for the option you want.

**Save new parameters ?**
YES                   -> Long Click
 NO, MODIFY       -> Short Click

# Hardware Options

## Print Density

This function makes it possible to adjust the energy level of the print headto darken the printout. An adjustment should only be made when necessary. The factory setting is 100%.

**Warning**:  Choose an energy level no higher than necessary to achieve a dark printout.

Failure to observe this rule may result in a printer service call or voiding of the printer warranty. Consult your NCR technical support specialist if you have any questions.

Press the Paper Feed Button for the print density you want.

**\*\* SET PRINT DENSITY ?**
YES        -> Long Click
NO         -> Short Click

100 %\*    -> 1 Click
110 %      -> 2 Clicks
120 %      -> 3 Clicks
Enter code, then hold Button DOWN
At least 1 second to validate

**Note:** Press the Paper Feed Button for at least one second to validate the selection.

## Maximum Power Option

This function allows the user to set the maximum power for the printer to 75W or 55W.

Press the Paper Feed Button for the option you want.

**\*\* SET MAX POWER OPTION ?**
YES        -> Long Click
NO         -> Short Click

55W Power Supply\*       -> Long Click
75W Power Supply        -> Short Click

**Note:** Press the Paper Feed Button for at least one second to validate the selection.

## Paper Low Sensor

Paper Low Sensor makes it possible to enable or disable the paper low sensor for particular printer configurations.

Press the Paper Feed Button for the option you want.

**\*\* SET PAPER LOW SENSOR OPTION ?**
YES       -> Long Click
NO        -> Short Click

Enable Paper Low Sensor\*    -> Long Click
Disable Paper Low Sensor    -> Short Clicks

**Note:** Press the Paper Feed Button for at least one second to validate the selection.

## Paper Width

This function allows the user to set the default paper width for the receipt thermal printer to 58mm or 80mm wide.

Press the Paper Feed Button for the paper width option you want.

**\*\* SET PAPER WIDTH ?**
YES       -> Long Click
NO        -> Short Click

Paper Width = 80 mm\*    -> 1 Click
Paper Width = 58 mm    -> 2 Clicks
Enter code, then hold Button DOWN
At least 1 second to validate

**Note:** Press the Paper Feed Button for at least one second to validate the selection.

## Set Knife Option

Set the Knife option using the configuration menu. Answer No to the questions printed on the receipt until you come to the instructions for knife option.

**Caution:** Be extremely careful changing any of the printer settings to avoid inadvertently changing other settings that might affect the performance of the printer.

Press the Paper Feed Button for the option you want.

**\*\* SET KNIFE OPTION ?**
YES       -> Long Click
NO        -> Short Click

Enable Knife\*       -> Long
Disable Knife      -> Short

### Color Paper Option

This function allows the user to set the color paper option to Monochrome or Color Paper.

Press the Paper Feed Button for the option you want.

**\*\* SET MAX POWER OPTION ?**
YES          -> Long Click
NO           -> Short Click

Monochrome*                    -> Long Click
Color Paper                    -> Short Click

**Note:** Press the Paper Feed Button for at least one second to validate the selection.

### Save Parameters

This function allows to save the selected hardware settings or return to the hardware options to select additional options.

Press the Paper Feed Button for the option you want.

**Save new parameters ?**
YES                  -> Long Click

NO, MODIFY       -> Short Click

# Default Code Page

This function makes it possible to select the default code page.

These are the code pages available for printing:
- Code page 437 (US English)
- Code page 850 (Multilingual)
- Code page 852 (Slavic)
- Code page 858 (with Euo symbol)
- Code page 860 (Portuguese)
- Code page 862 (Hebrew)
- Code page 863 (French Canadian)
- Code page 864 (Arabic)
- Code page 865 (Nordic)
- Code page 866 (Cyrillic)
- Code page 874 (Thai)
- Code page 1252 (Windows Latin #1)
- Code page Katakana
- Code page 932 (MS Japan)
- Space page

Note: For Asian code pages, code page 936, 949, or 950 replaces code page 932. Only one Asian code page (either 932, 936, 949, 950) will exist in firmware.

Press the Paper Feed Button for the Default Code Page you want.

**\*\* SET CODE PAGE ?**
YES        -> Long Click
NO         -> Short Click


Code Page 437*    -> 1 Click
Code Page 850     -> 2 Clicks
Code Page 852     -> 3 Clicks
Code Page 858     -> 4 Clicks
More Options        -> 5 Clicks
Enter code, then hold Button DOWN
At least 1 second to validate

Code Page 860     -> 1 Click
Code Page 862     -> 2 Clicks
Code Page 863     -> 3 Clicks
Code Page 864     -> 4 Clicks
More Options        -> 5 Clicks
Enter code, then hold Button DOWN
At least 1 second to validate

Code Page 865     -> 1 Click
Code Page 866     -> 2 Clicks
Code Page 874     -> 3 Clicks
Code Page 1252   -> 4 Clicks
More Options        -> 5 Clicks
Enter code, then hold Button DOWN
At least 1 second to validate

Code Page Katakana       -> 1 Click
Code Page 932               -> 2 Clicks
Enter code, then hold Button DOWN
At least 1 second to validate


**Note:** Press the Paper Feed Button for at least one second to validate the selection.
For Asian code pages, code page 936, 949 or 950 replaces code page 932 in the above
shown menu. Only one Asian code page (Either 932, 936, 949 or 950) will exist in
firmware.


## Save Parameters

This function allows to save the selected default code page selecton or return to the default
code page selecton to select additional options.


Press the Paper Feed Button for the option you want.

**Save new parameters ?**
YES                -> Long Click
NO, MODIFY      -> Short Click

# EEPROM to Default Settings

This selection resets the configuration to the Default Settings.

**Caution:** Be extremely careful changing any of the printer settings to avoid inadvertently changing other settings that might affect the performance of the printer.

**\*\* RESET EEPROM TO DEFAULT VALUES ?**

YES                              -> Long Click

NO                               -> Short Click

**Note:** Press the Paper Feed Button for at least one second to validate the selection.

## Save Parameters

This function allows to save the selected default code page selecton or return to the default code page selecton to select additional options.

Press the Paper Feed Button for the option you want.

**Save new parameters ?**
YES                -> Long Click

NO, MODIFY       -> Short Click

# Level 2 Diagnostics

Level 2 diagnostics run during normal printer operation. When the following conditions occur, the printer automatically turns off the appropriate motor, disables printing to prevent damage, and turns on the green LED (flashes the green LED if the receipt print head is too hot or the voltages are out of range):

- Paper out
- Cover open
- Knife unable to go back to home position
- Print head too hot
- Power supply voltage out of range

See "Chapter 3: Solving Problems" for more information about other conditions that may occur and how to correct them.

| Status | LED Behaviour |
|---|---|
| Power Off | Off |
| Firmware Download | Very Fast Blink |
| Level 0 Diagnostics | No Blink |
| Receipt Paper Low | Slow Blink |
| Temperature Error | No Blink |
| Voltage Error | No Blink |
| Cover Open | Fast Blink |
| Receipt Paper Out | Fast Blink |
| Knife Jam | Fast Blink, then Slow Blink |
| All other states | On |

# Level 3 Diagnostics

Level 3 diagnostics keeps track of the following tallies and prints them on the receipt during the receipt test.

- Serial number
- Model number
- CRC number
- Number of receipt lines printed
- Number of knife cuts
- Number of hours printer is on
- Number of flash cycles
- Maximum temperature reached
- Number of cutter jams
- Number of times the door is open

# Chapter 5: Communication

## Communication Overview

In order for a receipt to be printed, a program must be in place that translates the data from the host computer into a language that the printer can understand. This program must tell the printer exactly how to print each character. This chapter describes how to create such a program or modify an existing one.

### Interface

In order for the printer to communicate with the host, a communication link must be set up. The 7197 supports the industry standard RS-232C communication interface. This interface has a protocol associated with it that the host computer must understand and adhere.  The priner also supports USB communications.

Only when the interface parameters are matched and the proper protocol is used will the host and the printer be able to communicate. See the section, "RS-232C Interface" on the next page for a description of the protocol associated with the RS-232C interface.

### Sending Commands

Once the communication link is established, commands can be sent to the printer. This section describes how to send commands to the printer using DOS and BASIC. This section does not take into account the necessary protocol, but is meant as a general introduction to how the printer functions.

#### Using DOS to Send Commands

One way of getting commands to the printer is to send them directly from DOS. For example, the command

```
COPY CON: COM1:
```

This sets the computer up such that the Hex code corresponding to any key that was pressed would be sent to the RS-232C communication port COM1 when the COPY mode is exited. If the printer is connected to COM1, then the data will go to the printer.

Exit the COPY mode by typing

```
CTRL Z
```

and then pressing the ENTER key. This directs the data from any print command to the proper port, commands can be sent from any software program.

### Using BASIC to Send Commands

In BASIC, printer commands are sent as a string of characters preceded by the LPRINT command. For example,

```
LPRINT CHR$(&H0A)
```

sends the hexadecimal number 0A to the printer, which causes the printer to print the contents of its print buffer. Previously sent commands tell the printer exactly how this data should appear on the paper. For example,

```
LPRINT CHR$(&H12); "ABC"; CHR$(&H0A)
```

sends the Hex numbers 12 41 42 43 0A to the printer. This causes the printer to set itself to double wide mode (12), load the print buffer with "ABC" (41 42 43), and finally, print (0A). Again, the communication link that the BASIC program outputs to must be matched to that of the printer.

# RS-232C Interface

The RS-232C interface uses either XON/XOFF or DTR/DSR protocol. For XON/XOFF, a particular character is sent back and forth between the host and the printer to regulate the communication. For DTR/DSR, changes in the DTR/DSR signal coordinate the data flow.

The RS-232C version of the 7197 offers the standard options which are selectable in the Diagnostic mode. See "Diagnostics: Communications Interface Settings" later in this book.

## Print Speed and Timing

The fast speed of the printer requires the application to send data to the printer at least as fast as it is printed. This application must also allow receipt lines to be buffered ahead at the printer, so the printer can print each line immediately after the preceding line, without stopping to wait for more data. Ideally, the application will send all the data for an entire receipt without pausing between characters or lines transmitted.

If the application sends data at 9600 baud and pauses between lines for as little as 50 milliseconds, the printer will never be able to print at full speed. But, if the application sends data at 19.2 K baud and does not pause between lines, the printer will be able to print at its full speed of 1020 lines/minute.

The table shows that with a pause of 50 milliseconds after each line, the transmit time equals or exceeds the print time, slowing down the printer, regardless of the baud rate.

| Char./Line | Lines/Receipt | Transmit Time: (9600 Baud) | Transmit Time: (19.2 K Baud) | Print Time |
|---|---|---|---|---|
| 20 | 20 | 1.4 Seconds | 1.2 Seconds | 1.2 Seconds |
| 20 | 40 | 2.8 Seconds | 2.4 Seconds | 2.4 Seconds |
| 44 | 20 | 1.88 Seconds | 1.44 Seconds | 1.2 Seconds |
| 44 | 40 | 3.76 Seconds | 2.88 Seconds | 2.4 Seconds |

The next table shows that with no delay between lines, the transmit time is much less than the print time, allowing the printer to print at full speed.

| Char./Line | Lines/Receipt | Transmit Time: (9600 Baud) | Transmit Time: (19.2 K Baud) | Print Time |
|---|---|---|---|---|
| 20 | 20 | 0.4 Seconds | 0.2 Seconds | 1.2 Seconds |
| 20 | 40 | 0.8 Seconds | 0.4 Seconds | 2.4 Seconds |
| 44 | 20 | 0.88 Seconds | 0.44 Seconds | 1.2 Seconds |
| 44 | 40 | 1.76 Seconds | 0.88 Seconds | 2.4 Seconds |

## XON/XOFF Protocol

The XON/XOFF characters coordinate the information transfer between the printer and the host computer. The printer sends an XON character when it is ready to receive data and it sends an XOFF character when it cannot accept any more data. The software on the host computer must monitor the communication link as shown in the following flowchart in order to send data at the appropriate times.

If XON/XOFF has been selected, the printer also toggles the DTR signal, as described in the next section, but it does not look at the DSR signal to transmit data.

Was an XON or XOFF charactor last received?

13 HEX XOFF → Wait for XON character

XON 11 HEX → Send Data
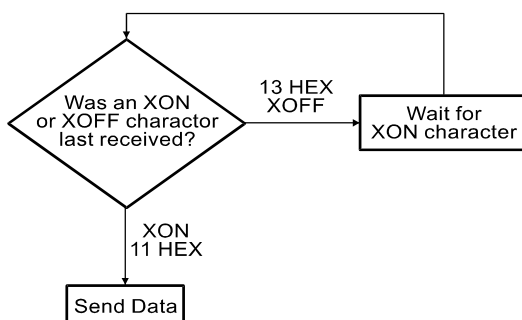
XON character = Hex 11.

XOFF character = Hex 13.

## DTR/DSR Protocol

The DTR signal is used to control data transmission to the printer. It is driven low when the printer is ready to recieve data and driven high when it cannot accept any more data. Data is transmitted from the printer after it confirms that the DSR signal is low.

Is DTR High or Low

High → Wait for DTR to Go Low

Low → Send Data
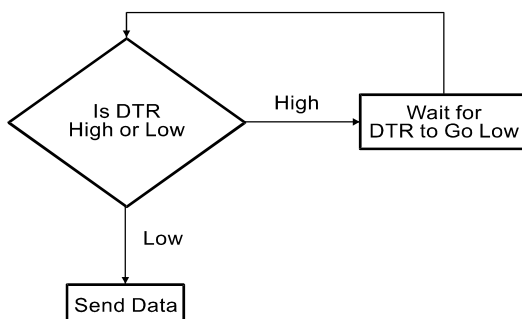
## RS-232C Technical Specifications

This section describes the pin settings for the connectors and the RS-232C interface parameters. The RS-232C parameters are selectable in the Diagnostic mode. See "Diagnostics: Communications Interface Settings" in chapter 4 for the position of the DIP switches. The RS-232C parameters must match those of the host.

## RS 232 Connector

The illustration shows the RS-232C communication connector and pin assignments. The connector is a 9-pin male D-shell connector and is located in the hollow cavity under the printer at the rear.



**Printer View (Male)**
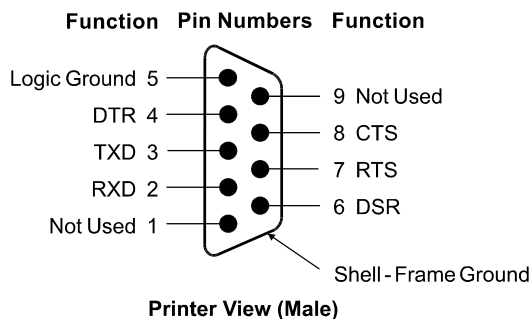
## DC Power Connector

The illustration shows the power cable connector and pin assignments. The power cable connector is a 3-pin DIN plug and is located in the hollow cavity under the printer at the rear.



Printer View End (Female)
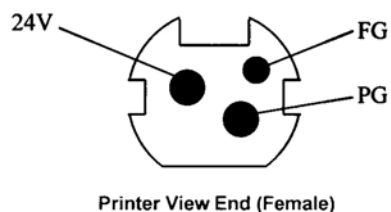
## Cash Drawer Connector

The following illustration shows the pin out designation for the cash drawer connectors.
The following table provides the pinout assignments for cash drawers one and two. The
cash drawer connectors are located at the rear of the printer.
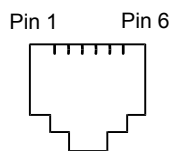


| Pin Number | Cash Drawer 1 Connector |
|---|---|
| 1 | Frame Ground |
| 2 | Drawer 1 Solenoid |
| 3 | Drawer 1 Status Switch |
| 4 | +24 Volts (to Solenoid +) |
| 5 | Drawer 2 Solenoid |
| 6 | Ground (Status Switch Return) |

## USB Connector

The following illustration is for the USB Type B communication connector and pin
assignment.
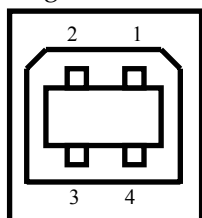


| Pin No | Signal |
|---|---|
| 1 | +5 V – USB |
| 2 | Data - |
| 3 | Data + |
| 4 | Ground |

## Switch Settings

The DIP switches are located on the PC board at the back of the printer as shown in the illustration in "Level 1 Diagnostics" in chapter 4.

The switches are used to put the printer into various modes for printer configuration set up.

**Printer End View**
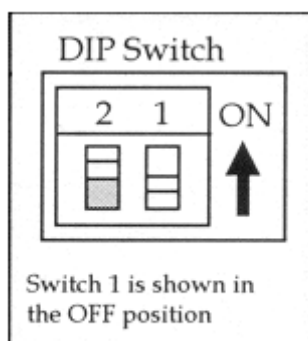


Use a paper clip or other pointed object to set the switches.

1.  Set the switches to the desired settings shown in the table.

**Caution:**  Do not set switch 1 to On. Setting switch 1 to On puts the printer in level 1 diagnostics (setup mode) where other functions and tests can be changed.

**DIP Switch Settings**

| Switch 1 Setting | Switch 2 Setting | Printer State |
| --- | --- | --- |
| OFF (0) | OFF (0) | On-line Mode (default) |
| ON(1) | OFF (0) | Diagnostic Mode |
| OFF (0) | ON (1)* | Flash Download Mode |
| ON (1) | ON (1) | Vendor Adjustment Mode |

* It is optional to set this switch to ON when reflashing the IPL firmware.

## Setting Extra RS-232C Options

The following extra options are available for the RS-232C Interface:

- Data errors
  - Print "?" for data errors (default)
  - Ignore data errors

# Chapter 6: Commands

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## Command Conventions

## Introduction

The different features and functions provided by the printer are controlled by sending commands from the host computer to the printer.  This section describes the commands that are supported by the printer.  The printer commands are made up of one or more bytes of data starting with a command control code followed by its supporting parameters.

Commands control all operations and functions of the printer.  This includes selecting the size and placement of characters and graphics on the receipt or the slip and feeding and cutting the paper.  Unless otherwise noted, any of the commands may be used in any combination to communicate with the printer from a program in a host computer.

In order to allow the graceful handling of commands that may be available in other printers but are not available in this printer, some commands will be listed and described but identified as "not implemented." If the printer receives one of these "not implemented" commands, the command and its supporting operands will be discarded.  Any other data bytes, including unrecognized commands, are sent to the print buffer as data, and the printer will attempt to print the data when it is instructed to print the buffer.

## List of Commands and Location

This section presents groups of lists of the hexadecimal  command codes, parameters,  and the command names.  A page reference is provided for the page on which the command is more fully described.  If this document is being viewed online, the page reference will be linked to the actual page and may clicked to go to that page.

The first section lists all of the commands.  The following lists are separated into functional category groupings.

All commands **listed in bold** are new or have additional functionality when compared to the NCR 7193.

## By Command Code

All items in **BOLD** are new or have additional functionality when compared to the 7193.

| Code (Hexadecimal) | Command | Page |
|---|---|---|
| 09 (HT) | Horizontal Tab | 92 |
| 0A (LF) | Print and Feed Paper One Line | 86 |
| **0C (FF)** | **Print and Return to Standard Mode** | **152** |
| 0D (CR) | Print and Carriage Return | 86 |
| 10 | Clear Printer | 80 |
| 10 04 n | Real Time Status Transmission (DLE Sequence) | 139 |
| 10 05 n | Real Time Request to Printer (GS Sequence) | 141 |
| **11 *n1... nk*** | **Print Raster Graphics** | **80** |
| 12 | Select Double-Wide Characters | 100 |
| 13 | Select Single-Wide Characters | 100 |
| 14 *n* | Feed *n* Print Lines | 87 |
| 15 *n* | Feed *n* Dot Rows | 87 |
| 16 *n* | Add *n* Extra Dot Rows | 88 |
| 17 | Print | 88 |
| **18** | **Cancel Print Data in Page Mode** | **153** |
| 19 | Perform Full Knife Cut | 81 |
| **1A** | **Perform Partial Knife Cut** | **81** |
| **1B (+ *.bmp)** | **Download BMP Logo** | **116** |
| 1B 07 | Generate Tone | 82 |
| **1B 0C** | **Print Data in Page Mode** | **153** |
| 1B 12 | Select 90 Degree Counter-Clockwise Rotated Print | 100 |
| 1B 14 *n* | Set Column | 92 |
| 1B 16 *n* | Select Pitch (Column Width) | 101 |
| 1B 20 *n* | Set Character Right-Side Spacing | 102 |
| 1B 21 *n* | Select Print Modes | 103 |
| 1B 24 *n1 n2* | Set Absolute Starting Position | 93 |
| 1B 25 *n* | Select or Cancel User-Defined Character Set | 104 |
| 1B 26 3 *c1 c2…dn* | Define User-Defined Characters | 104 |
| 1B 27 *m a0 a1 a2 d1 … dm* | Write to User Data Storage | 162 |
| 1B 2A *m n1 n2 d1 … dn* | Select Bit Image Mode | 116 |

| Code (Hexadecimal) | Command | Page |
|---|---|---|
| **1B 2D** *n* | **Select or Cancel Underline Mode** | **105** |
| 1B 2E *m n rl rh d1…dn* | Print Advanced Raster Graphics | 119 |
| 1B 32 | Set Line Spacing to 1/6 Inch | 89 |
| 1B 33 *n* | Set Line Spacing | 89 |
| 1B 34 m a0 a1 a2 | Read from User Data Storage | 162 |
| 1B 3A 30 30 30 | Copy Character Set from ROM to RAM | 106 |
| 1B 3F n | Cancel User-defined Characters | 106 |
| 1B 40 | Initialize Printer | 82 |
| 1B 44 [*n*] *k 00* | Set Horizontal Tabs | 94 |
| 1B 45 *n* | Select or Cancel Emphasized Mode | 107 |
| 1B 47 | Select Double Strike (7193 Emulation) | 107 |
| **1B 49 n** | **Set or Cancel Italic Print** | **108** |
| 1B 4A *n* | Print and Feed Paper | 90 |
| **1B 4C** | **Select Page Mode** | **154** |
| **1B 52** *n* | **Select International Character Set** | **109** |
| **1B 53** | **Select Standard Mode** | **155** |
| **1B 54** *n* | **Select Print Direction in Page Mode** | **156** |
| 1B 56 *n* | Select or Cancel 90 Degrees Clockwise Rotated | 110 |
| **1B 57** *n1, n2,… n8* | **Set Printing Area in Page Mode** | **157** |
| 1B 59 n1 n2 d1…dn | Select Double Density Graphics | 119 |
| 1B 5B 7D | Switch to Flash Download Mode | 174 |
| 1B 5C *n1 n2* | Set Relative Print Position | 95 |
| 1B 61 *n* | Select Justification | 96 |
| 1B 63 34 *n* | Select Sensors to Stop Printing | 83 |
| 1B 63 35 *n* | Enable or Disable Panel Buttons | 83 |
| 1B 64 *n* | Print and Feed *n* Lines | 91 |
| 1B 69 | Perform Full Knife Cut | 81 |
| 1B 6A *k* | Read from Non-Volatile Memory | 163 |
| 1B 6D | Perform Partial Cut | 81 |
| 1B 70 *n p1 p2* | Generate Pulse to Open Cash Drawer | 84 |
| 1B 72 *n* | **Select Print Color** | 110 |
| 1B 73 *n1 n2 k* | Write to Non-Volatile Memory (NVRAM) | 163 |
| **1B 74 n** | **Select International Character Set** | **109** |
| 1B 75 0 | Transmit Peripheral Device Status | 127 |
| 1B 76 | Transmit Paper Sensor Status | 127 |
| 1B 7B n | Select or Cancel Upside Down Printing Mode | 110 |
| 1C 21 *n* | Select print modes for Kanji characters | 170 |
| 1C 2D *n* | Turn underline mode ON/OFF for Kanji | 171 |
| 1C 32 *c1 c2 d1…dn* | Define user-defined Kanji characters | 171 |

| Code (Hexadecimal) | Command | Page |
|---|---|---|
| 1C 53 *n1 n2* | Set Kanji character spacing | 172 |
| 1c 57 *n* | Set quadruple mode ON/OFF for Kanji | 173 |
| 1D 00 | Request Printer ID | 174 |
| 1D 01 | Return Segment Number Status of Flash Memory | 175 |
| 1D 02 *n* | Select Flash Memory Sector to Download | 175 |
| 1D 03 *n* | Real Time Request to Printer (DLE Sequence) | 141 |
| 1D 04 *n* | Real Time Status Transmission (GS Sequence) | 139 |
| 1D 05 | Real Time Printer Status Transmission | 142 |
| 1D 06 | Get Firmware CRC | 176 |
| 1D 07 | Return Microprocessor CRC | 176 |
| 1D 0E | Erase the Flash Memory | 177 |
| 1D 0F | Return Main Program Flash CRC | 177 |
| 1D 10 *n* | Erase Selected Flash Sector | 178 |
| 1D 11 *al ah cl ch d1…dn* | Download to Active Flash Sector | 179 |
| **1D 21 *n*** | **Select Character Size** | **111** |
| 1D 22 *n* | Select Memory Type (SRAM/Flash) Where to Save Logos or User-Defined Fonts | 164 |
| **1D 22 55 *n1 n2*** | **Flash Allocation** | **165** |
| 1D 23 n | Select the Current Logo (Downloaded Bit Image) | 121 |
| **1D 24 *nL nH*** | **Set Absolute Vertical Print Position in Page Mode** | **158** |
| 1D 2A *n1 n2 d1…d*n] | Define Downloaded Bit Image | 122 |
| 1D 2F *m* | Print Downloaded Bit Image | 123 |
| **1D 3A** | **Start or End Macro Definition** | **160** |
| 1D 40 *n* | Erase User Flash Sector | 166 |
| **1D 42 *n*** | **Select or Cancel White/Black Reverse Print Mode** | **113** |
| 1D 48 *n* | Select Printing Position for HRI Characters | 146 |
| 1D 49 *n* | Transmit Printer ID | 129 |
| 1D 49 40 *n* | Transmit Printer ID, Remote Diagnostics Extension | 130 |
| 1D 4C *nL nH* | Set Left Margin | 97 |
| 1D 50 *x y* | Set Horizontal and Vertical Minimum Motion Units | 91 |
| 1D 56 *m* | Select Cut Mode and Cut Paper | 84 |
| 1D 56 *m n* | Select Cut Mode and Cut Paper | 84 |
| 1D 57 *nL nH* | Set Printing Area Width | 98 |
| **1D 5C *nL nH*** | **Set Relative Vertical Print Position in Page Mode** | **159** |
| **1D 5E *r t m*** | **Execute Macro** | 161 |

| Code (Hexadecimal) | Command | Page |
|---|---|---|
| 1D 61 *n* | Select or Cancel Automatic Status Back | 143 |
| 1D 66 *n* | Select Pitch for HRI Characters | 147 |
| 1D 68 *n* | Select Bar Code Height | 147 |
| **1D 6B *m d1...*** | **Print Bar Code** | **148** |
| 1D 6B *m n d1…dn* | Print Bar Code | 148 |
| 1D 72 *n* | Transmit Status | 131 |
| 1D 77 *n* | Select Bar Code Width | 151 |
| 1D FF | Reboot the Printer | **180** |
| **1F 04 *n*** | **Convert 6 Dots/mm Bitmap to 8 Dots/mm Bitmap** | **125** |
| **1F 05 n** | **Select Superscript or Subscript Modes** | **113** |
| IF 11 *[m n],[m n]…[m n] 0FFH* | Printer Setting Change | **167** |
| 1F 56 | Send Printer Software Version | **135** |
| **1F 74** | **Print Test Form** | **85** |

## By Function

All items in **BOLD** are new or have additional functionality when compared to the 7193.

## Printer Function Commands

| Code (Hexadecimal) | Command | Page |
|---|---|---|
| 10 | Clear Printer | 80 |
| 19 or 1B 69 | Perform Full Knife Cut | 81 |
| **1A or 1B 6D** | **Perform Partial Knife Cut** | **81** |
| 1B 07 | Generate Tone | 82 |
| 1B 40 | Initialize Printer | 82 |
| 1B 63 34 n | Select Sensors to Stop Printing | 83 |
| 1B 63 35 n | Enable or Disable Panel Buttons | 83 |
| 1B 70 n p1 p2 | Generate Pulse to Open Cash Drawer | 84 |
| 1D 56 m | Select Cut Mode and Cut Paper | 84 |
| 1D 56 m n | Select Cut Mode and Cut Paper | 84 |
| **1F 74** | **Print Test Form** | **85** |

## Vertical Positioning and Print

| Code (Hexadecimal) | Command | Page |
|---|---|---|
| 0A | Print and Feed Paper One Line | 86 |
| 0D | Print and Carriage Return | 86 |
| 14 n | Feed *n* Print Lines | 87 |
| 15 n | Feed *n* Dot Rows | 87 |
| 16 n | Add *n* Extra Dot Rows | 88 |
| 17 | Print | 88 |
| 1B 32 | Set Line Spacing to 1/6 Inch | 89 |
| 1B 33 n | Set Line Spacing | 89 |
| 1B 4A n | Print and Feed Paper | 90 |
| 1B 64 n | Print and Feed *n* Lines | 91 |
| 1D 50 x y | Set Horizontal and Vertical Minimum Motion Units | 91 |

## Horizontal Positioning Commands

| Code (Hexadecimal) | Command | Page |
|---|---|---|
| 09 | Horizontal Tab | 92 |
| 1B 14 n | Set Column | 92 |
| 1B 24 n1 n2 | Set Absolute Starting Position | 93 |
| 1B 44 [n] k 00 | Set Horizontal Tabs | 94 |
| 1B 5C n1 n2 | Set Relative Print Position | 95 |
| 1B 61 n | Select Justification | 96 |
| 1D 4C nL nH | Set Left Margin | 97 |
| 1D 57 nL nH | Set Printing Area Width | 98 |

## Print Characteristic Commands

| Code (Hexadecimal) | Command | Page |
|---|---|---|
| 12 | Select Double-Wide Characters | 100 |
| 13 | Select Single-Wide Characters | 100 |
| 1B 12 | Select 90 Degree Counter-Clockwise Rotated Print | 100 |
| 1B 16 n | Select Pitch (Column Width) | 101 |
| 1B 20 n | Set Character Right-Side Spacing | 102 |
| 1B 21 n | Select Print Modes | 103 |
| 1B 25 n | Select or Cancel User-Defined Character Set | 104 |
| 1B 26 s c1 c2 d1…dn | Define User-Defined Characters | 104 |
| **1B 2D n** | **Select or Cancel Underline Mode** | **105** |
| 1B 3A 30 30 30 | Copy Character Set from ROM to RAM | 106 |
| 1B 3F n | Cancel User-Defined Characters | 106 |
| 1B 45 n | Select or Cancel Emphasized Mode | 107 |
| 1B 47 n | Select Double Strike | 107 |
| **1B 49 n** | **Select or Cancel Italic Print** | **108** |
| **1B 52 n** | **Select International Character Set** | **109** |
| 1B 56 n | Select or Cancel 90 Degrees Clockwise Rotated Print | 110 |
| 1B 72 n | Select Print Color | 110 |
| 1B 74 n | Select International Character Set | 109 |
| 1B 7B n | Select or Cancel Upside Down Printing Mode | 110 |
| **1D 21 n** | **Select Character Size** | **111** |

| Code (Hexadecimal) | Command | Page |
|---|---|---|
| **1D 42 n** | **Select or Cancel White/Black Reverse Print Mode** | **113** |
| **1F 05 n** | **Select Superscript or Subscript Modes** | **113** |

## Graphics Commands

| Code (Hexadecimal) | Command | Page |
|---|---|---|
| **11 n1 ... nk** | **Print Raster Graphics** | **116** |
| **1B (+*.bmp)** | **Download BMP Logo** | **116** |
| 1B 2A m n1 n2 d1…dn | Select Bit Image Mode | 116 |
| 1B 2E m n rl rh d1…dn | Advanced Raster Graphics | 119 |
| 1B 4B n1 n2 d1…dn | Select Single-Density Graphics | 119 |
| 1B 59 n1 n2 d1…dn | Select Double-Density Graphics | 119 |
| 1D 23 n | Select Current Logo (Downloaded Bit Image) | 121 |
| 1D 2A n1 n2 d1…dn] | Define Downloaded Bit Image | 122 |
| 1D 2F m | Print Downloaded Bit Image | 123 |
| **1F 04 n** | **Convert 6 Dots/mm Bitmap to 8 Dots/mm Bitmap** | **125** |

## Status Commands

**Batch Mode**

| Code (Hexadecimal) | Command | Page |
|---|---|---|
| 1B 75 0 | Transmit Peripheral Device Status | 127 |
| 1B 76 | Transmit Paper Sensor Status | 127 |
| 1D 49 n | Transmit Printer ID | 129 |
| 1D 49 40 n | Transmit Printer ID, Remote Diagnostics Extension | 130 |
| 1D 72 n | Transmit Status | 131 |
| 1F 56 n | Send Printer Software Version | 135 |

## Real Time Commands

| Code (Hexadecimal) | Command | Page |
|---|---|---|
| 10 04 n | Real Time Status Transmission (DLE Sequence) | 139 |
| 10 05 n | Real Time Request to Printer (GS Sequence) | 141 |
| 1D 03 n | Real Time Request to Printer (DLE Sequence) | 141 |

| | Real Time Status Transmission (GS Sequence) | 139 |
|---|---|---|
| 1D 04 n | Real Time Status Transmission (GS Sequence) | 139 |
| 1D 05 | Real Time Printer Status Transmission | 142 |

## Auto Status Back Commands

| Code (Hexadecimal) | Command | Page |
|---|---|---|
| 1D 61 n | Select or Cancel Auto Status Back | 142 |

## Barcode Commands

| Code (Hexadecimal) | Command | Page |
|---|---|---|
| 1D 48 n | Select Printing Position for HRI Characters | 146 |
| 1D 66 n | Select Pitch for HRI Characters | 147 |
| 1D 68 n | Select Bar Code Height | 147 |
| **1D 6B m d1…dk 00**<br><br>or<br><br>1D 6B m n d1…dn | **Print Bar Code** | **148** |
| 1D 77 n | Select Bar Code Width | 151 |

## Page Mode Commands

| Code (Hexadecimal) | Command | Page |
|---|---|---|
| **0C** | **Print and Return to Standard Mode** | **152** |
| **18** | **Cancel Print Data in Page Mode** | **153** |
| **1B 0C** | **Print Data in Page Mode** | **153** |
| **1B 4C** | **Select Page Mode** | **154** |
| **1B 53** | **Select Standard Mode** | **155** |
| **1B 54 n** | **Select Print Direction in Page Mode** | **156** |
| **1B 57 n1, n2…n8]** | **Set printing Area in Page Mode** | **157** |
| **1D 24 nL nH** | **Set Absolute Vertical Print Position in Page Mode** | **158** |
| **1D 5C nL nH** | **Set Relative Vertical Print Position in Page Mode** | **159** |

## Macro Commands

| Code (Hexadecimal) | Command | Page |
|---|---|---|
| **1D 3A** | **Start or End Macro Definition** | **160** |
| **1D 5E r t m** | **Execute Macro** | **161** |

## User Data Storage Commands

| Code (Hexadecimal) | Command | Page |
|---|---|---|
| 1B 27 m addr d1…dm | Write to User Data Storage | 162 |
| 1B 34 m addr | Read from User Data Storage | 162 |
| 1B 6A k | Read from Non-Volatile Memory | 163 |
| 1B 73 n1 n2 k | Write to Non-Volatile Memory (NVRAM) | 163 |
| 1D 22 n | Select Memory Type (SRAM/Flash) Where to Save Logos or User-Defined Fonts | 164 |
| **1D 22 55 n1 n2** | **Flash Allocation** | **165** |
| 1D 40 n | Erase User Flash Sector | 166 |
| IF 11 [m n],[m n]…[m n] 0FFH | Printer Setting Change | 167 |

## Asian Character Commands

| Code (Hexadecimal) | Command | Page |
|---|---|---|
| 1C 21 n | Select print modes for Kanji characters | 170 |
| 1C 2D n | Turn underline mode ON/OFF for Kanji | 171 |
| 1C 32 c1 c2 d1…dn | Define user-defined Kanji characters | 171 |
| 1C 53 n1 n2 | Set Kanji character spacing | 172 |
| 1c 57 n | Set quadruple mode ON/OFF for Kanji | 173 |

## Flash Download Commands

| Code (Hexadecimal) | Command | Page |
|---|---|---|
| 1B 5B 7D | Switch to Flash Download Mode | 174 |
| 1D 00 | Request Printer ID | 174 |
| 1D 01 | Return Segment Number Status of Flash Memory | 175 |
| 1D 02 n | Select Flash Memory Sector to Download | 175 |
| 1D 06 | Get Firmware CRC | 176 |
| 1D 07 | Return Microprocessor CRC | 176 |
| 1D 0E | Erase the Flash Memory | 177 |
| 1D 0F | Return Main Program Flash CRC | 177 |
| 1D 10 n | Erase Selected Flash Sector | 178 |
| 1D 11 aL aH cL cH d1…dn | Download to Active Flash Sector | 179 |
| 1D FF | Reboot the Printer | 180 |

## Comparison Chart

The following table details the list of commands whose behavior differs from the 7193 and the 7197  because of the physical differences of a 6 dots/mm head (7193) versus an 8 dots/mm head (7197).

| Command | Description | Difference between 7193 and 7197 configured in 7193 Emulation Mode. |
|---|---|---|
| 15 *n* | Feed *n* Dot Rows | This command will move the paper on the receipt in n/203 inch steps instead of n/152 inch steps. |
| 16 *n* | Add *n* Extra Dot Rows | The dot rows will be measured in n/203 inches versus n/152 inches. |
| 1B 20 *n* | Set Right-Side Character Spacing | This command sets the right side spacing to "n" horizontal motion units. By default, these units are in terms of 1/203 inches versus 1/152 inches. |
| 1B 24 *n1 n2* | Set Absolute Starting Position | For graphics commands, the position is scaled to best 7193. In text mode, the equivalent character position is calculated. |
| 1B 26 *s c1 c2 n1 d1...nn dn*] | Define User-Defined Character Set | Since the dots on the 7197 print head are smaller, user-defined characters that were used on the previous printer will appear smaller on the 7197 printer. |
| 1B 2A *m n1 n2 d1...dn* | Select Bit Image Mode | In 7193 Emulation Mode, graphics are scaled to best match the size of the graphic in the 7193 printer. |
| 1B 33 *n* | Set Line Spacing | This command uses *n* in terms of n/360 inches. Since the 7193 had a fundamental step of 1/152 inch and the 7197 has a fundamental step of 1/203 inch, the actual line spacing will not exactly match the requested spacing. |
| 1B 4A *n* | Print and Feed Paper | (Same as above) |
| 1B 59 *n1 n2 d1...dn* | Select Double-Density | In 7193 Emulation Mode, the |

| Command | Description | Difference between 7193 and 7197 configured in 7193 Emulation Mode. |
|---|---|---|
|  | Graphics | printer scales the graphics to provide the best match. |
| 1B 5C *n1 n2* | Set Relative Print Position | The parameter to this command is in units of dots. However, the command moves and aligns to character positions. In 7193 Emulation Mode, this command calculates how many character positions to move based on the 7193 character width in dots (10) versus the 7197 (13). |
| 1B 61 *n* | Select Justification | This command does true dot resolution alignment for centering versus character-aligned centering. |
| 1D 2A *n1 n2 d1...dn*] | Define Downloaded Bit Image | In 7193 Emulation Mode, this command scales the incoming data to provide a best match to the size of the image as it printed on 7193. |
| 1D 2F *m* | Print Downloaded Bit Image | (Same as above) |

# Command Descriptions

This section provides the detailed description of the commands. These commands are separated into groups according to their function or use. The previous sections can be used as an index for the following sections.

The following lists and describes the headings used to present the elements of the commands in the descriptions in this section. Each command code is presented in three formats: ASCII, hexadecimal, and decimal. Choose the format that best suits the programming implementation. The printer interprets the 8-bit bytes it gets through its communication interface; it does not care what format the program lists them in.

| | |
|---:|:---|
| **Name:** | **Name of Command** |
| **ASCII:** | The ASCII representation of the command control code followed by its operands. |
| **Hexadecimal:** | The hexadecimal representation of the command control code followed by its operands. |
| **Decimal:** | The decimal representation of the command control code followed by its operands. |
| **Operand *n*:** | A description of the command operand. Other command operands may be m, p1, p2, x, or y. |
| **Range of *n*:** | The upper and lower limits or list of possible values of the command operand. The values are listed as decimal values unless specified otherwise. |
| **Default of *n*:** | The command operand default value after printer reset or startup. |
| **Description:** | A brief description of the use of the command. |
| **Formulas:** | Any formulas used for this command. |
| **Example:** | Coding example of how to send the command in Visual Basic. This code assumes we are doing output to an opened and ready device called "MSCOMM1." The examples use the hexadecimal command code formats; the ASCII or decimal formats could also be used in VB. In commands that use an operand, a specific value is used, and the result of using the selected value for the operand is described. |
| **Exceptions:** | Describes any exceptions to this command, e.g., incompatible |

commands.

**Related Information:** Describes related information for this command, e.g., bit information.

## Printer Function Commands

The printer function commands control the following basic printer functions and are described in order of their hexadecimal codes:

1. Resetting the printer

2. Cutting the paper

3. Opening the cash drawers

### Clear Printer

**ASCII:**        DLE

**Hexadecimal:**   10

**Decimal:**      16

Clears the print line buffer without printing and sets the printer to the following condition:

1. Double-Wide command (0x12) is cancelled

2. Line Spacing, Pitch, and User-Defined Character Sets are maintained at current selections (RAM is not affected)

3. Single-Wide, Single-High, Non-Rotated, and Left-Aligned characters are set

4. Printer is restarted and error status is cleared if a fault condition existed

5. Printing position is set to column one

6. Knife is homed

- Example:
- MSComm1.Output = Chr$(&H10)

Exceptions:

A DLE command followed by an 04 or 05 is interpreted as a "real time command". (See Real Time commands)

## Perform Partial Knife Cut (Previously command was full knife cut)

| **ASCII**: | EM | or | ESC  i |
| **Hexadecimal**: | 19 | or | 1B  69 |
| **Decimal:** | 25 | or | 27  105 |

Cuts the receipt, leaving .20 inch (5 mm) of paper. This command is implemented the same as Partial Knife Cut (1A, 1B 6D). There are two codes for this command. Both codes perform the same function.

A Line Feed is executed first if print buffer is not empty.

Example:

- MSComm1.Output = Chr$(&H19)  or
- MSComm1.Output = Chr$(&H1B) & Chr$(&H69)

## Perform Partial Knife Cut

| **ASCII**: | SUB | or | ESC  m |
| **Hexadecimal**: | 1A | or | 1B  6D |
| **Decimal:** | 26 | or | 27  109 |

Cuts the receipt, leaving 5 mm (.20 inch) of paper. This command is implemented the same as Full Knife Cut (19, 1B 6D) which results in a partial knife cut.  There are two codes for this command and both perform the same function.

Example:

- MSComm1.Output = Chr$(&H1A)  or
- MSComm1.Output = Chr$(&H1B) & Chr$(&H6D)

Exceptions:

Line Feed is executed first if the buffer is not empty.

## Generate Tone

| | |
|---|---|
| **ASCII:** | ESC  BEL |
| **Hexadecimal:** | 1B   07 |
| **Decimal:** | 27   7 |

Generates an audible tone. This allows the application to provide an audiable tone to the operator.

Example:

- MSComm1.Output = Chr$(&H1B) & Chr$(&H07)

## Initialize Printer

| | |
|---|---|
| **ASCII:** | ESC @ |
| **Hexadecimal:** | 1B 40 |
| **Decimal:** | 27 64 |

**Default:**

| | |
|---|---|
| **Character Pitch** | 15.6 CPI |
| **Column Width** | 44 characters (80mm)<br>32 characters (58mm) |
| **Extra Dot Rows** | 2 |
| **Character Set** | Code Page 437 |
| **Printing Position** | Column One |

Clears the print line buffer and resets the printer to the default settings for the startup configuration (refer to Default settings above.)

Single-Wide, Single-High, Non-Rotated, and Left-Aligned characters are set and User-defined characters or logo graphics are cleared (Flash Memory is not affected). Tabs reset to default.

Example:

- MSComm1.Output = Chr$(&H1B) & Chr$(&H40)

## Select Sensors to Stop Printing

**ASCII**: ESC c 4 *n*

**Hexadecimal**: 1B 63 34 *n*

**Decimal:** 27 99 52 *n*

**Value of *n* :**

| Bit | Function |
|-----|----------|
| 0, 1 | Stop Receipt on Receipt Low |
| 2 - 7 | Undefined |

**Default:** 0

Determines which sensor stops printing on the receipt station. The command does not affect the paper out sensor on the receipt station, which will automatically stop the printer when the paper is depleted.

Example:

- MSComm1.Output = Chr$(&H1B) & Chr$(&H63) & Chr$(&H34) & Chr$(n)

## Enable or Disable Panel Buttons

**ASCII**: ESC c 5 *n*

**Hexadecimal**: 1B 63 35 *n*

**Decimal:** 27 99 53 *n*

**Value of *n* :** 0 = Enable

1 = Disable

**Default:** 0 (Enable)

Enables or disables the Paper Feed Button. If the last bit is 0, the Paper Feed Button is enabled. If the last bit is 1, the Paper Feed Button is disabled so pressing the paper feed button will result in no response.

Example:

- MSComm1.Output = Chr$(&H1B) & Chr$(&H63) & Chr$(&H35) & Chr$(n)

Related Information:

Functions that require using the Paper Feed Button (except for the Execute Macro [1D 5E] command) cannot be used when it is disabled with this command.

## Generate Pulse to Open Cash Drawer

**ASCII:** ESC p *n p*1 *p*2

**Hexadecimal:** 1B 70 *n p*1 *p*2

**Decimal:** 27 112 *n p*1 *p*2

**Value of *n* :** 0, 48 = Drawer 1

1, 49 = Drawer 2

**Value of *p1*:** 0 - 255

**Value of *p2*:** 0 - 255

Sends a pulse to open the cash drawer.

**Formulas:**

The value for either *p1* or *p2* is the hexadecimal number multiplied by 2 msec to equal the total time.

1.  On time = *p1* x 2 msec

2.  Off time = *p2* x 2 msec

Example:

*   MSComm1.Output = Chr$(&H1B) & Chr$(&H70) & Chr$(n) & Chr$(n)

Related Information:

The off-time is the delay before the printer performs the next operation.

Refer to cash drawer specifications for required on and off times.

## Select Cut Mode and Cut Paper

**ASCII:** GS V *m* or GS V *m n*

**Hexadecimal:** 1D 56 *m* or 1D 56 *m n*

**Decimal:** 29 86 *m* or 29 86 *m n*

**Value of *m*:** Selects the mode as shown in the table

**Value of *n* :** Determines cutting position only if *m* is 65 or 66.

| m | Feed and Cut Mode |
|---|---|
| 0, 48 | Full cut (no extra feed). Partial cut on the Sam. |
| 1, 49 | Partial cut (no extra feed). |
| 65 | Feeds paper to cutting position + (*n* times vertical motion unit), and cuts the paper completely. |
| 66 | Feeds paper to cutting position + (*n* times vertical motion unit), and performs a partial cut. |

**Range of *m*:**   0, 48; 1, 49

   65, 66 (when used with *n*)

**Range of *n*:**   0 - 255

**Default of *n*:**   0

**Default of *m*:**   0

Selects a mode for cutting paper and cuts the paper. There are two formats for this command, one requiring one parameter *m*, the other requiring two parameters, *m* and *n*. The format is indicated by the parameter *m.*

**Formulas:** *n* times the vertical motion unit is used to determine the cutting position to the distance that the paper is fed.

- Example:
- MSComm1.Output = Chr$(&H1D) & Chr$(&H56) & Chr$(m) & Chr$(n)

**Exceptions:**
If *m* is out of the specified range, the command is ignored.

## Print Test Form

**ASCII:**   US t

**Hexadecimal:**   1F 74

**Decimal:**   31 116

Prints the current printer configuration settings on the receipt.

Disabled in page mode.

- Example:
- MSComm1.Output = Chr$(&H1F) & Chr$(&H74)

Exception:

This command is available in 7194 Native Mode and 7197 Native Mode only.

# Vertical Positioning and Print Commands

The vertical positioning and print commands control the vertical print positions of characters on the receipt.

## Print and Feed Paper One Line

**ASCII:**              LF

**Hexadecimal:**     0A

**Decimal:**          10

Prints one line from the buffer and feeds paper one line.

Example:

- MSComm1.Output = Chr$(&H0A)

Related Information:

Carriage Return + Line Feed, prints and feeds only one line.

## Print and Carriage Return

**ASCII:**              CR

**Hexadecimal:**     0D

**Decimal:**          13

Prints one line from the buffer and feeds paper one line. The printer can be set through the configuration menu to ignore or use this command. Some applications expect the command to be ignored while others use it as print command.

- Example:
- MSComm1.Output = Chr$(&H0D)

Related Information:

See Ignoring/Using the Carriage Return in *Diagnostics* for more information.

Carriage Return + Line Feed, prints and feeds only one line.

### Feed *n* Print Lines

| | |
|---|---|
| **ASCII:** | DC4 *n* |
| **Hexadecimal:** | 14 *n* |
| **Decimal:** | 20 *n* |
| **Value of *n*:** | The number of lines to feed at current line height setting. |
| **Range of *n* :** | 0 – 127  7193 Emulation Mode |
| | 0 – 255  7194 Native Mode and 7197 Native Mode |

Feeds paper *n* lines at the current line height without printing.

Ignored if the current line is not empty.

- Example:
- MSComm1.Output = Chr$(&H14) & Chr$(n)

### Feed *n* Dot Rows

| | |
|---|---|
| **ASCII:** | NAK *n* |
| **Hexadecimal:** | 15 *n* |
| **Decimal:** | 21 *n* |
| **Value of *n*:** | *n*/203 inch |
| **Range of *n* :** | 0 – 127 7193 Emulation Mode |
| | 0 – 255 7194 Native Mode and 7197 Native Mode |

Feeds paper n dot rows without printing.  Receipt moves n rows if the print buffer is empty.

Example:

- MSComm1.Output = Chr$(&H15) & Chr$(n)

### Add *n* Extra Dot Rows

**ASCII:**     SYN *n*

**Hexadecimal:**  16 *n*

**Decimal:**    22 *n*

**Value of *n*:**   *n*/203 inch

**Range of *n*:**   0 - 12

**Default:**    3

Adds *n* extra dot rows to the character height to increase space between print lines or decrease number of lines per inch.

**Formulas:**

The following table shows the relationship between the number of lines per inch and each extra dot row(s) added:

**Receipt Station**

| Extra Rows | Lines Per Inch | Dot Rows |
|---|---|---|
| 0 | 8.47 | 24 |
| 1 | 8.13 | 25 |
| 2 | 7.81 | 26 |
| **3** | **7.52** | **27** |
| 4 | 7.25 | 28 |
| 5 | 7.00 | 29 |
| 6 | 6.77 | 30 |
| 7 | 6.55 | 31 |
| 8 | 6.35 | 32 |
| 9 | 6.16 | 33 |
| 10 | 5.98 | 34 |
| 11 | 5.81 | 35 |
| 12 | 5.64 | 36 |

Example:

- MSComm1.Output = Chr$(&H16) & Chr$(n)

## Print

**ASCII:**      ETB

**Hexadecimal:**      17

**Decimal:**      23

Prints one line from the buffer and feeds paper one line. Executes LF on receipt.

Example:

- MSComm1.Output = Chr$(&H17)

## Set Line Spacing to 1/6 Inch

**ASCII:**      ESC 2

**Hexadecimal:**      1B 32

**Decimal:**      27 50

**Default:**      0.13 Inch (3.33 mm)

Sets the default line spacing to 1/6 of an inch (4.25 mm).

Example:

- MSComm1.Output = Chr$(&H1B) & Chr$(&H32)

## Set Line Spacing

**ASCII**:      ESC 3 *n*

**Hexadecimal**:      1B 33 *n*

**Decimal:**      27 51 *n*

**Value of *n*:**      *n*/406 inches in 7194 Native Mode and 7197 Native Mode

      *n*/360 inches in 7193 Emulation Mode

**Range of *n*:**      0 – 255

**Default:**      .13 inch (3.37 mm or 7.52 lines per inch, 3 extra dot rows.).

Sets the line spacing to n/406 inches. The minimum line spacing is 8.5 lines per inch. The line spacing equals the character height when *n* is too small.

If the Set Horizontal and Vertical Minimum Motion Units command (1D 50) is used to change the horizontal and vertical minimum motion unit, the parameters of this command (Set Line Spacing) will be interpreted accordingly.

Related Information:

For more information, see the description of the Set Horizontal and Vertical Minimum Motion Units command in this document.

## Print and Feed Paper

**ASCII**:            ESC J *n*

**Hexadecimal**:    1B 4A *n*

**Decimal:**        27 74 *n*

**Value of *n***:     *n*/203 inches in 7194 Native Mode and 7197 Native Mode

                    *n*/360 inches in 7193 Emulation Mode

**Range of *n***:    0 - 255

Prints one line from the buffer and feeds the paper.

The line height equals the character height when *n* is too small.

Example:

- MSComm1.Output = Chr$(&H1B) & Chr$(&H4A) & Chr$(n)

Related Information:

For more information, see the description of the Set Horizontal and Vertical Minimum Motion Units command in this document.

### Print and Feed *n* Lines

**ASCII**:          ESC d *n*

**Hexadecimal**:   1B 64 *n*

**Decimal:**       27 100 *n*

**Value of *n*:**   Number of lines to be printed and fed.

**Range of *n*:**   1 – 255   (0 is interpreted as 1 on the receipt station)

Prints one line from the buffer and feeds paper *n* lines at the current line height.

Example:

- MSComm1.Output = Chr$(&H1B) & Chr$(&H64) & Chr$(n)

### Set Horizontal and Vertical Minimum Motion Units

**ASCII:**          GS P *x y*

**Hexadecimal:**   1D 50 *x y*

**Decimal:**       29 80 *x y*

**Value of *x*:**   Horizontal

**Value of *y*:**   Vertical

**Range of *x*:**   0 - 255

**Range of *y*:**   0 - 255

**Default: of *x*:**   203

**Default: of *y*:**   203

Sets the horizontal and vertical motion units to $1/x$ inch and $1/y$ inch respectively.

When $x$ or $y$ is set to 0, the default setting for that motion unit is used.

The default horizontal motion is $x$ = 203.

Example:

- MSComm1.Output = Chr$(&H1D) & Chr$(&H50) & Chr$(x) & Chr$(y)

## Horizontal Positioning Commands

The horizontal positioning commands control the horizontal print positions of characters on the receipt.

### Horizontal Tab

**ASCII:**          HT

**Hexadecimal:**    09

**Decimal:**        9

Moves the print position to the next tab position set by the Set Horizontal Tab Positions (1B 44 $n1$ $n2$ ... 00) command. The print position is reset to column one after each line.

Tab treats the left margin as column one, therefore changes to the left margin will move the tab positions.

When there are no tabs defined to the right of the current position, or if the next tab is past the right margin, line feed is executed . HT has no effect in page mode. Printer initialization sets 32 tabs at column 9, 17, 25, … (Every 8 characters)

Example:

- MSComm1.Output = Chr$(&H09)

### Set Column

**ASCII**:          ESC DC4 $n$

**Hexadecimal**:    1B 14 $n$

**Decimal:**        27 20 $n$

**Value of $n$:**       1-44 (Standard, 80 mm)        1-32 (Standard, 58 mm)

                    1-56 (Compressed, 80         1-42 (Compressed, 58 mm)
                    mm)

**Default of $n$:**     1

Prints the first character of the next print line in column $n$. It must be sent for each line not printed at column one. The value of $n$ is set to one after each line.

Example:

- MSComm1.Output = Chr$(&H1B) & Chr$(&H14) & Chr$(n)

Exceptions:

The command cannot be used with Single- or Double-Density graphics.

## Set Absolute Starting Position

**ASCII:**         ESC $ *n1 n2*

**Hexadecimal:**    1B 24 *n1 n2*

**Decimal:**      27 36 *n1 n2*

**Value of *n*:**     Number of dots to be moved from the beginning of the line.

**Value of *n1*:**    Remainder after dividing *n* by 256.

**Value of *n2*:**    Integer after dividing *n* by 256.

The values for $n1$ and $n2$ are two bytes in low byte, high byte word orientation.

Sets the print starting position to the specified number of dots (up to the right margin) from the beginning of the line. The print starting position is reset to the first column after each line.

**Formulas:**

Determine the value of *n* by multiplying the column for the absolute starting position by 10 (standard pitch) or 8 (compressed pitch). The example shows how to calculate column 29 (10 dots per column) as the absolute starting position.

28 x 10 = 280 dots (beginning of column 29)
280/256 = 1, remainder of 24
*n*1 = 24     *n*2 = 1

Example:

- MSComm1.Output = Chr$(&H1B) & Chr$(&H24) & Chr$(n1) & Chr$(n2)

Related Information:

This command is also used in the graphics mode. See Graphics Commands in this chapter for more information.

If the Set Horizontal and Vertical Minimum Motion Units command (1D 50) is used to change the horizontal and vertical minimum motion unit, the parameters of this command (Set Absolute Print Position) will be interpreted accordingly. For more information, see the description of the Set Horizontal and Vertical Minimum Motion Units command (1D 50) in this document.

## Set Horizontal Tabs

**ASCII**:           ESC D *[n] k* NUL

**Hexadecimal**:     1B 44 *[n] k* 00

**Decimal:**         27 68 *[n] k* 0

**Value of *n*:**    Column for tab minus one.

                     *n* is always less than or equal to the current selected column width.

**Value of *k*:**    0 - 32

**Default:**         Every 8 characters from column. 1 (9, 17, 25, etc.) for normal print.

Sets up to 32 horizontal tab positions *n* columns from column one, but does not move the print position. See the Horizontal Tab (09) command.

The tab positions remain unchanged if the character widths are changed after the tabs are set. This command ends with hexadecimal 00; hexadecimal 1B 44 00 clears all tabs. Tabs assumed to be in strictly ascending order. A tab out of order terminates the command string as if it were 00, and remaining tab values are taken as normal data.

**Formulas:**

Set the tab positions in ascending order and put Hex 00 at the end.

Hex 1B 44 00 (number of tabs not specified) clears all tab positions.

Example:

- MSComm1.Output = Chr$(&H1B) & Chr$(&H44) & Chr$(&H00)

Exceptions:

The tabs cannot be set higher than the column width of the current pitch.

## Set Relative Print Position

**ASCII:**              ESC \ *n1 n2*

**Hexadecimal:**     1B 5C *n1 n2*

**Decimal:**           27 92 *n1 n2*

**Value of *n*:**

To Move the Relative Starting Position Right of the Current Position by *n* dots:
*n*1 =        Remainder after dividing *n* by 256.
*n*2 =        Integer after dividing *n* by 256.

The values for *n*1 and *n*2 are two bytes in low byte, high byte word orientation.

To Move the Relative Starting Position Left of the Current Position by *n* dots:
*n*1 =        Remainder after dividing (65,536-*n*) by 256
*n*2 =        Integer after dividing (65,536-*n*) by 256

The values for *n*1 and *n*2 are two bytes in low byte, high byte word orientation.

Moves the print starting position the specified number of dots either right (up to the right margin) or left (up to the left margin) of the current position. The print starting position is reset to the first column after each line.

**Formulas:**

To move to the left:

Determine the value of *n* by multiplying the number of columns to move left of the current position by 13 (standard pitch) or 10 (compressed pitch). The example shows how to set the relative position two columns in standard pitch (10 dots per column) to the left of the current position.

2 x 10 = 20 dots (two columns to be moved left of the current position)
65,536-20 = 65516

65,516/256 = 255, remainder of 236
*n1* = 236    *n2* = 255

To move to the right:

Determine the value of *n* by multiplying the number of columns to move right of the current position by 10 (standard pitch) or 8 (compressed pitch). The example shows how to set the relative position two columns in standard pitch (10 dots per column) to the right of the current position.

2 x 10 = 20 dots (two columns to be moved right of the current position)
20/256 = 0, remainder of 20
*n1* = 20      *n2* = 0

- Example:

- MSComm1.Output = Chr$(&H1B) & Chr$(&H5C) & Chr$(n1) & Chr$(n2)

Related Information:

If the Set Horizontal and Vertical Minimum Motion Units command (1D 50) is used to change the horizontal and vertical minimum motion unit, the parameters of this command

(Set Relative Print Position) will be interpreted accordingly. For more information, see the description of the Set Horizontal and Vertical Minimum Motion Units command (1D 50) in this document.

**Compatibility Information (7194 Native Mode** and 7197 Native Mode **receipt vs. 7193 receipt)**

There is a difference in the normal behavior of this command in 7194 Native Mode and 7197 Native Mode as compared to the original 7193. The difference exists when the command is used to move to the left. The 7193 processes the whole print string prior to putting it in the buffer for the print head. This method of processing allows the 7193 to backup in the print string and replace characters and their associated attributes when a "Set Relative Print Position" command instructs the printer to move the print position to the left.

In order to improve the speed of printing, the 7197 moves the data into a buffer for the print head when it receives it. When the "Set Relative Print Position" command contains a move to the left, this causes the new data to overstrike the previous data. This behavior can be used to an application's advantage to provide the ability to create compound characters on the receipt station.

## Select Justification

| | |
|---|---|
| **ASCII**: | ESC a *n* |
| **Hexadecimal**: | 1B 61 *n* |
| **Decimal:** | 27 97 *n* |
| **Value of *n*:** | 0, 48 = Left Aligned |
| | 1, 49 = Center Aligned |
| | 2, 50 = Right Aligned |
| **Range of *n*:** | 0 – 2, 48-50 |
| **Default:** | 0 (Left aligned) |

Specifies the alignment of the characters, graphics, logos, and bar codes on the receipt station.

Example:

- MSComm1.Output = Chr$(&H1B) & Chr$(&H61) & Chr$(n)

Exceptions:

The command is valid only when input at the beginning of a line.

## Set Left Margin

**ASCII**:              GS L *nL nH*

**Hexadecimal**:        1D 4C *nL nH*

**Decimal:**            29 76 *nL nH*

**Range of *nL*:**      0 - 255

**Range of *nH*:**      0 - 255

**Default:**            80 mm width    576 dots (the maximum printable area)

                        58 mm width    424 dots (the maximum printable area)

Sets the left margin of the printing area. The left margin is set to (((*nH* X 256) + *nL*) times horizontal motion unit) inches. The horizontal motion units are set by the Set Horizontal and Vertical Minimum Motion Units command (1D 50), described in this manual.

The width of the printing area is set by the Set Printing Area Width command (1D 57), which follows this command. See the Set Printing Area Width command (1D 57) in this document for a description of that command.

If the setting exceeds the printable area, the maximum value of the printable area is used. The maximum printable area is 576 dots. See the illustration.

**Formulas:**

To set the left margin to one inch at the default horizontal motion unit of 1/203 inches, send the four-byte string:
```
GS  L  203  0
```

Or, to set the left margin to two inches at the default horizontal motion unit of 1/203 units per inch, send the four-byte string:
```
GS  L  150  1
```

Where 2 inches = 406/203, and 406 = (1 X 256) + 150.

←——— Printable area: 576 dots for 80 mm width, 424 dots for 58 mm width

———→



←——Left margin———→        ←————Printing area width————→
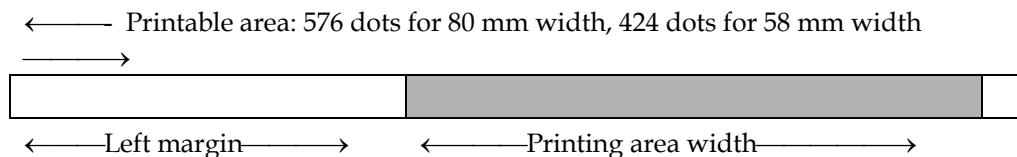
Example:

• MSComm1.Output = Chr$(&H1D) & Chr$(&H4C) & Chr$(nL) & Chr$(nH)

Exceptions:

The command is effective only at the beginning of a line.

This command is ignored if the line buffer is not empty.

## Set Printing Area Width

**ASCII**:               GS W *nL nH*

**Hexadecimal**:      1D 57 *nL nH*

**Decimal:**           29 87 *nL nH*

**Range of *nL*:**      0 – 255

**Range of *nH*:**      0 - 255

**Default:**              80 mm width    576 dots (the maximum printable area)

                      58 mm width    424 dots (the maximum printable area)

Sets the width of the printing area. If the setting exceeds the printable area, the maximum value of the printable area is used.

The width of the printing area is set to (((*nH* X 256) + *nL*) times horizontal motion unit) inches. The horizontal motion units are set by the Set Horizontal and Vertical Minimum Motion Units command (1D 50).

The width of the printing area follows the Set Left Margin command (1D 4C).
See the Set Left Margin command (1D 4C…) earlier in this document for a description.

**Formulas:**

To set the width of the printing area to one inch at the default horizontal motion unit of 1/203 inches, send the four-byte string:
```
GS  W  203  0
```

Or, to set the width of the printing area to two inches at the default horizontal motion unit of 1/203 units per inch, send the four-byte string:
```
GS  W  150  1
```

Where 2 inches = 406/203, and 406 = (1 X 256) + 150.

←──────────────────── Printable area 576 dots──────────────────→

←──────Left margin────────→   ←──────Printing area width──────────→
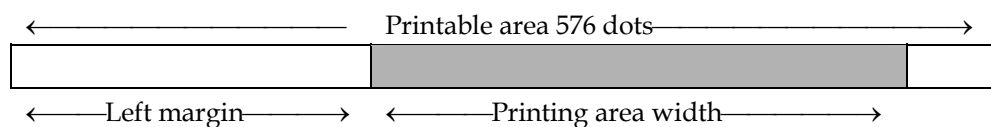
Example:

• MSComm1.Output = Chr$(&H1D) & Chr$(&H57) & Chr$(nL) & Chr$(nH)

Exceptions:

This command is effective only at the beginning of a line.

This command is ignored if the line buffer is not empty, and only effects the Receipt interface.

If the setting exceeds the printable area, the maximum value of the printable area is used. The maximum printable area is 576 dots for 80 mm paper width and 424 dots for 58 mm paper width. See the illustration in the Set Left Margin command (1D 4C).

# Print Characteristic Commands

These commands control what the printed information looks like: selection of character sets, definition of custom-defined characters, and setting of margins. The commands are described in order of their hexadecimal codes

## Select Double-Wide Characters

**ASCII:** DC2

**Hexadecimal:** 12

**Decimal:** 18

Prints double-wide characters. The printer is reset to single-wide mode after a line has been printed or the Clear Printer (0x10) command is received. Double-wide characters may be used in the same line with single-wide characters.

Example:

- MSComm1.Output = Chr$(&H12)

## Select Single-Wide Characters

**ASCII:** DC3

**Hexadecimal:** 13

**Decimal:** 19

Prints single-wide characters. Single-wide characters may be used in the same line with double-wide characters.

Example:

- MSComm1.Output = Chr$(&H13)

## Select 90 Degree Counter-Clockwise Rotated Print

| ASCII: | ESC DC2 |
|---|---|
| Hexadecimal: | 1B 12 |
| Decimal: | 27 18 |

Rotates characters 90 degrees counter-clockwise. The command remains in effect until the printer is reset or until a Clear Printer (0x10), Select or Cancel Upside-Down Print (1B 7B), or Select or Cancel Rotated Print (1B 56) command is received.

Example:

- MSComm1.Output = Chr$(&H1B) & Chr$(&H12)

Exceptions:

This command is valid only at the beginning of a line.

Rotated print and non-rotated print characters cannot be used together in the same line.

Related Information:

See Summary of Rotated Printing in this chapter.

## Select Pitch (Column Width)

**ASCII**:             ESC SYN *n*

**Hexadecimal**:    1B 16 *n*

**Decimal:**          27 22 *n*

**Value of *n*:**      0 = Standard Pitch

                          1 = Compressed Pitch

**Default:**           0 (Standard pitch)

Selects the character pitch for a print line.

**Formulas:**

The following table provides the print characteristics for both pitches.

| Pitch | Columns | CPI |
|---|---|---|
| Standard | 44 for 80 mm paper | 15.6 |
| | 32 for 58 mm paper | |
| Compressed | 56 for 80 mm paper | 20.3 |
| | 42 for 58 mm paper | |

Example:

- MSComm1.Output = Chr$(&H1B) & Chr$(&H16) & Chr$(n)

Related Information:

See "Technical Specifications" for descriptions of character pitches (print modes).

## Set Character Right-Side Spacing

**ASCII**:             ESC SP *n*

**Hexadecimal**:      1B 20 *n*

**Decimal:**          27 32 *n*

**Range of *n*:**      0 - 32

**Default:**           0

Sets the right side character spacing to [*n* x horizontal or vertical motion units]. Values for this command are set independently in Standard and Page Mode.

The units of horizontal and vertical motion are specified by the Set Horizontal and Vertical Minimum Motion Units (1D 50…) command. Changes in the horizontal or vertical units do not affect the current right side character spacing. When the horizontal or vertical motion unit is changed by the Set Horizontal and Vertical Minimum Motion Units (1D 50…) command the value must be in even units and not less than the minimum amount of horizontal movement.

In Standard Mode the horizontal motion unit is used.

In Page Mode the horizontal or vertical motion unit differs and depends on the starting position of the printable area. When the starting printing position is the upper left or lower right of the printable area (set by Select Print Direction in Page Mode, 1B 54 n) the horizontal motion unit (*x*) is used. When the starting printing position is the upper right or lower left of the printable area (set by Select Print Direction in Page Mode, 1B 54 n) the vertical motion unit (*y*) is used.

Example:

- MSComm1.Output = Chr$(&H1B) & Chr$(&H20) & Chr$(n)

Exception:

This command is ignored in 7193 Emulation Mode and is only valid on the receipt station.

## Select Print Modes

**ASCII**:          ESC ! *n*

**Hexadecimal**:    1B 21 *n*

**Decimal:**        27 33 *n*

**Value of *n*:**   Pitch selection (standard, compressed, double high, or double wide.)

| Bit | Function | 0 | 1 |
|-----|----------|---|---|
| Bit 0 | Pitch | Standard Pitch[1] <br> 15.6 CPI <br> 44 Col/Line, (80 mm) <br> 32 Col/Line, (58 mm) | Compressed Pitch <br> 20.3 CPI <br> 56 Col/Line, (80 mm) <br> 42 Col/Line, (58 mm) |
| Bit 3 | Emphasized Mode | Canceled | Set |
| Bit 4 | Double-high[2] | Canceled | Set |
| Bit 5 | Double-wide | Canceled | Set |
| Bit 7 | Underlined Mode | Canceled | Set |

Bits 1, 2, 6 are not used.

[1]Standard and compressed pitch cannot be used together in the same line.

**Default:**        0 (for bits 0, 3, 4, 5, 7)

Selects the print mode: standard, compressed, double high, or double wide.

Example:

- MSComm1.Output = Chr$(&H1B) & Chr$(&H21) & Chr$(n)

Related Information:

The bits in this command perform the same function as the standalone functions:

1B 16 n          Select Pitch

1B 45 n          Emphasized

12               Double-wide

13               Single-wide

1B 2D n          Underline

## Select or Cancel User-Defined Character Set

**ASCII**:                 ESC % *n*

**Hexadecimal**:       1B 25 *n*

**Decimal:**           27 37 *n*

**Value of *n*:**         0= Code Page 437

                      1= User-defined (RAM character set)

                      2= Code Page 850

**Range:**              0 - 2

**Default:**           0 (Code Page 437)

Selects the character set. When an undefined RAM character is selected, the Code Page 437 character is used. See the *Printing Specification Guide* for the character sets.

Example:

- MSComm1.Output = Chr$(&H1B) & Chr$(&H25) & Chr$(n)

## Define User-Defined Characters
            **Receipt**

**ASCII:**           ESC & 3 *c*1 *c*2 *n*1 *d*1 ... *n*n *d*n

**Hexadecimal:**     1B 26 3 *c*1 *c*2 *n*1 *d*1 ... *n*n *d*n

**Decimal:**          27 38 3 *c*1 *c*2 *n*1 *d*1 ... *n*n *d*n

Defines and enters downloaded characters into RAM or Flash. The command may be used to overwrite single characters. User-defined characters are available until power is turned off or the Initialize Printer command (1B 40) is received.

Any invalid byte (*s*, *c*1, *c*2, *n*1) aborts the command.

The command clears bit image logo data from RAM. The illustration below provides a sample of a character cell.

## Defining User-Defined Characters

Defines and enters downloaded characters into RAM.
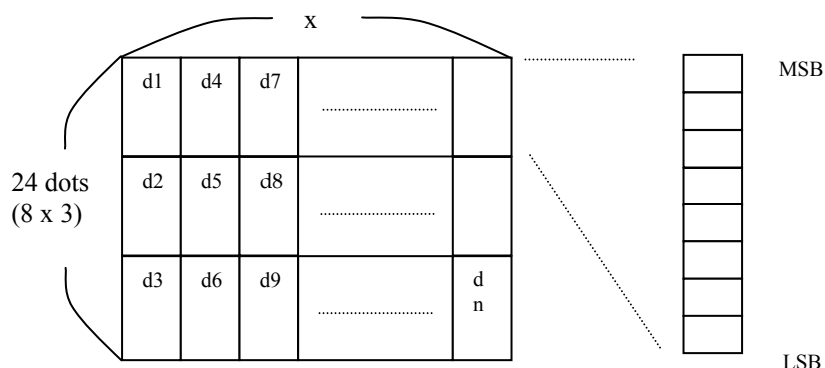
Values and Ranges:

$c$ = the ASCII codes of the first ($c_1$) and last ($c_2$) characters respectively

$c_1$ = Hex 20-FF (Hex 20 is always printed as a space)

$c_2$ = Hex 20-FF (Hex 20 is always printed as a space)

To define only one character, use the same code for both $c_1$ and $c_2$.

$n$ = the number of dot columns for the nth character as specified by $n_1$ ... $n_n$

$n$ = 1-10 (standard pitch), 12 and less accepted but ignored

$n$ = 1-8 (compressed pitch), 12 and less accepted but ignored

$d$ = the column data for the nth character as specified by $d_1$ ... $d_n$

The number of bytes for a particular character cell is 3 x $n_1$.

The bytes are printed down and across each cell.

Related Information:

See 1D 22 $n$ (Select Memory Type Where to Save User-Defined Fonts.)


## Select or Cancel Underline Mode

**ASCII**:            ESC - $n$

**Hexadecimal**:    1B 2D $n$

**Decimal:**         27 45 $n$

**Value of $n$:**     0, 48 = Cancel underline mode

                     1, 49 = Select underline mode

**Default of $n$:**   0 (Cancels underline mode)

Turns underline mode on or off. Underlines cannot be printed for spaces set by the Horizontal Tab, Set Absolute Start Position, or Set Relative Print Position commands.

This command and the Select Print Mode(s) command (1B 21) turn underline on and off in the same way.

Example:

- MSComm1.Output = Chr$(&H1B) & Chr$(&H2D) & Chr$(n)

Exceptions:

This command is ignored if *n* is out of the specified range.

This command is only available in 7194 Native Mode and 7197 Native Mode.

## Copy Character Set from ROM to RAM

**ASCII**:          ESC : 0 0 0

**Hexadecimal**:    1B 3A 30 30 30

**Decimal:**        27 58 48 48 48

**Default:**        Code Page 437

Copies characters in the active ROM set to RAM. Use this command to re-initialize the User-Defined Character Set. Code Page 437 is copied by default at initialization.

The command is ignored if current font is the user font.

Example:

- MSComm1.Output = Chr$(&H1B) & Chr$(&H3A) & Chr$(&H30) & Chr$(&H30)
- & Chr$(&H30)

Related Information:

To modify characters in one of the character set variations, such as Rotated Print, select one of the Rotated Print commands, copy to RAM, then use the Define User-Defined Character Set command (1B 26).

## Cancel User-Defined Characters

**ASCII**:          ESC ? *n*

**Hexadecimal**:    1B 3F *n*

**Decimal:**        27 63 *n*

**Value of *n*:**   Specified character code

**Range of *n*:**   32 - 255

Cancels the pattern defined for the character code specified by *n*. After the user-defined character is canceled, the corresponding pattern from Code Page 437 is printed.

Example:

- MSComm1.Output = Chr$(&H1B) & Chr$(&H3F) & Chr$(n)

Exceptions:

This command is ignored if *n* is out of range or if the user-defined character is not defined.

## Select or Cancel Emphasized Mode

| | |
|---|---|
| **ASCII**: | ESC E *n* |
| **Hexadecimal**: | 1B 45 *n* |
| **Decimal:** | 27 69 |
| **Value of *n*:** | 0 (bit 0), not selected |
| | 1 (bit 0), selected |
| **Range of *n*:** | 0 - 255 |
| **Default:** | 0 (bit 0) |

Starts or stops emphasized printing.

Example:

- MSComm1.Output = Chr$(&H1B) & Chr$(&H45) & Chr$(n)

Exceptions:

Only the lowest bit of *n* is effective.

Emphasized printing cannot be used with bit-images or downloaded bit-images.

Related Information:

This command and the Select Print Mode(s) command (1B 21) function identically.

## Select or Cancel Double Strike

| | |
|---|---|
| **ASCII**: | ESC G *n* |
| **Hexadecimal**: | 1B 47 *n* |
| **Decimal:** | 27 71 *n* |
| **Value of *n*:** | 0 = Off |
| | 1 = On |

Turns double strike mode on or off. Identical to Emphasized mode command. The printer is reset to the standard print mode after a line has been printed or after a Clear Printer (0x10) command is received.

Example:

- MSComm1.Output = Chr$(&H1B) & Chr$(&H47) & Chr$(n)

Exceptions:

These settings do not apply in Page Mode. However they can be set or cleared in Page Mode.

Double-strike printing cannot be used with bit-images or downloaded bit-images.

Related Information:

This command and the Select Print Mode(s) comand (1B 21) functionidentically.  They should have the same setting when used together.

In 7193 Emulation, this command is unrecognized and the parameter byte is put in to the printer buffer.

## Select or Cancel Italic Print

**ASCII**:             ESC I *n*

**Hexadecimal**:    1B 49 *n*

**Decimal:**        27 73 *n*

**Value of *n*:**      0 = Off

                    1 = On

                    (When 0 and 1 are the Least Significant Bit, LSB)

**Default:**        0 (Off)

Turns Italic print mode on or off. This command is only available in **7194 Native** Mode and 7197 Native Mode. Italic print mode is available for built-in, user-defined characters.

Example:

- MSComm1.Output = Chr$(&H1B) & Chr$(&H49) & Chr$(n)

Exceptions:

Only the lowest bit of *n* is valid. This command is only valid for the receipt station in 7194 Native Mode and 7197 Native Mode.

## Select International Character Set

| | | | |
|---|---|---|---|
| **ASCII**: | ESC R *n* | or | ESC t *n* |
| **Hexadecimal**: | 1B 52 *n* | or | 1B 74 *n* |
| **Decimal:** | 27 82 *n* | or | 27 116 *n* |

| | |
|---|---|
| **Value of *n*:** | 0 = Code Page 437    US English |
| | 1 = Code Page 850 Multilingual |
| | 2 = Code Page 852 Slavic |
| | 3 = Code Page 860 Portuguese |
| | 4 = Code Page 863 French Canadian |
| | 5 = Code Page 865 Nordic |
| | 6 = Code Page 858 Multilingual with Euro Symbol |
| | 7 = Code Page 866 Cyrillic |
| | 8 = Code Page 1252 Windows Latin I |
| | 9 = Code Page 862 Hebrew |
| | 20 = Code Page Katakana |
| | 21 = Code Page 874 Thailand |
| | 22 = Code Page 864 Arabic |
| | 128 = Code Page 932 |
| | 129 = Code Page 936 |
| | 130 = Code Page 949 |
| | 131 = Code Page 950 |
| **Default:** | 0 (Code Page 437) |

Selects the character set to be used. See *Print Specifications* for the character sets.

There are two codes for this command. Both codes perform the same function.

Example:

- MSComm1.Output = Chr$(&H1B) & Chr$(&H52) & Chr$(n)

Related Information:

This command may also be known as Select Character Code Table.

## Select Character Code Table

See the previous command, Select International Character Set.

## Select or Cancel 90 Degrees Clockwise Rotated Print

**ASCII**: ESC V $n$

**Hexadecimal**: 1B 56 $n$

**Decimal:** 27 86 $n$

**Value of $n$:** 0 = Cancel

1 = Set

**Default:** 0 (Cancel)

Rotates characters 90 degrees clockwise. The command remains in effect until the printer is reset or the Clear Printer (0x10) command is received. See Summary of Rotated Printing in this chapter.

Example:

- MSComm1.Output = Chr$(&H1B) & Chr$(&H56) & Chr$(n)

## Select Print Color

**ASCII**: ESC r $n$

**Hexadecimal**: 1B 72 $n$

**Decimal:** 27 114 $n$

**Value of $n$:** 0 = Monochrome

1 = 2nd Color

**Default:** 0 (Monochrome)

Selects color printing. Color printing is valid for character, graphics, logo and barcode.

Example:

- MSComm1.Output = Chr$(&H1B) & Chr$(&H72) & Chr$(n)

### Select or Cancel Upside Down Printing Mode

| | |
|---|---|
| **ASCII**: | ESC { *n* |
| **Hexadecimal**: | 1B 7B *n* |
| **Decimal:** | 27 123 *n* |
| **Value of *n*:** | 0 = Cancel |
| | 1 = Set |
| **Default:** | 0 (Cancel) |

Prints upside-down characters. The character order is inverted in the buffer so text is readable. The command remains in effect until the Rotated Print (1B 12) command is received. Only bit 0 is used. Bits 1-7 are not used. See Summary of Rotated Printing in this document for more information.

Example:

* MSComm1.Output = Chr$(&H1B) & Chr$(&H7B) & Chr$(n)

Exceptions:

The command is valid only at the beginning of a line.
The Rotated Print command (1B 12) cancels this command.

### Select Character Size

| | |
|---|---|
| **ASCII**: | GS ! *n* |
| **Hexadecimal**: | 1D 21 *n* |
| **Decimal:** | 29 33 *n* |
| **Value of *n*:** | 1 - 8 = vertical number of times normal font |
| | 1 – 8 = horizontal number of times normal font |
| **Range of *n*:** | 00 – 07, 10 – 17, … 70 – 77 |
| **Default of *n*:** | 0 |

Selects the character height using bits 0 to 2 and selects the character width using bits 4 to 7, as follows:

**Character Width Selection**

| Hex | Decimal | Width |
|-----|---------|-------|
| 00 | 0 | 1 (normal) |
| 10 | 16 | 2 (two times width) |
| 20 | 32 | 3 (three times width) |
| 30 | 48 | 4 (four times width) |
| 40 | 64 | 5 (five times width) |
| 50 | 80 | 6 (six times width) |
| 60 | 96 | 7 (seven times width) |
| 70 | 112 | 8 (eight times width) |

**Character Height Selection**

| Hex | Decimal | Height |
|-----|---------|--------|
| 00 | 0 | 1 (normal) |
| 01 | 1 | 2 (two times height) |
| 02 | 2 | 3 (three times height |
| 03 | 3 | 4 (four times height) |
| 04 | 4 | 5 (five times height) |
| 05 | 5 | 6 (six times height) |
| 06 | 6 | 7 (seven times height) |
| 07 | 7 | 8 (eight times height) |

This command is effective for all characters (except for HRI characters).

In Standard Mode, the vertical direction is the paper feed direction, and the horizontal direction is perpendicular to the paper feed direction. However, 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. When characters are enlarged with different sizes on one line, all the characters on the line are aligned at the baseline.

The Select Print Mode (1B 21 n) command can also select or cancel double-width and double-height modes. However, the setting of the last received command is effective.

Example:

- MSComm1.Output = Chr$(&H1D) & Chr$(&H21) & Chr$(n)

Exceptions:

If *n* is out of the defined range, this command is ignored.

This is only available in 7194 Native Mode and 7197 Native Mode.

## Select or Cancel White/Black Reverse Print Mode

**ASCII**:              GS B *n*

**Hexadecimal**:        1D 42 *n*

**Decimal:**            29 66 *n*

**Value of *n*:**        0 = Off

**Range of *n*:**        1 = On(Only the lowest bit is used.)

**Default of *n*:**      0 – 255

                        0 (Off)

Turns on White/Black reverse printing mode. This command is only available in 7194 Native Mode and 7197 Native Mode. In White/Black reverse printing mode, print dots and non-print dots are reversed, which means that white characters are formed by printing a black background. When the White/Black reverse printing mode is selected it is also applied to character spacing which is set by Right-Side Character Spacing (1B 20).

This command can be used with built-in characters and user-defined characters, but does not affect the space between lines.

White/Black Reverse Print Mode does not affect bit image, downloaded bit image, bar code, HRI characters, and spacing skipped by Horizontal Tab (09), Set Absolute Starting Position (1B 24…), and Set Relative Print Position (1B 5C).

White/Black reverse mode has a higher priority than Underline Mode. When Underline Mode is on and White/Black Reverse Print Mode is selected, Underline Mode is disabled, but not canceled.

Example:

• MSComm1.Output = Chr$(&H1D) & Chr$(&H42) & Chr$(n)

Exceptions:

This is only available in 7194 Native Mode and 7197 Native Mode.

## Select or Cancel Smoothing Mode

**ASCII:**              GS b  *n*

**Hexadecimal:**        1D 62 *n*

**Decimal:**            29 98 *n*

This command is ignored.
Example:

- MSComm1.Output = Chr$(&H1D) & Chr$(&H62) & Chr$(n)

## Select Superscript or Subscript Modes

**ASCII:**           US ENQ *n*

**Hexadecimal:**    1F 05 *n*

**Decimal:**        31 05 *n*

**Value of *n*:**      0 = Normal character size

                      1 = Select subscript size

                      2 = Select superscript size

**Default:**        0 (normal size)

Turns superscript or subscript modes on or off. This attribute may be combined with other characters size settings commands ( 12, 13, 1B 21 *n*, 1D 21 *n*, …)

This command is only available on the receipt station in 7194 Native Mode and 7197 Native Mode.

Example:

- MSComm1.Output = Chr$(&H1F) & Chr$(&H05) & Chr$(n)

Exceptions:

This command is ignored if *n* is out of the specified range.

This is only available in 7194 Native Mode and 7197 Native Mode.

## Summary of Rotated Printing

The table shows the combinations of Set/Cancel Upside-Down Print, Set/Cancel Rotated Print (clockwise), and Rotated Print (counterclockwise). Rotated CCW is mutually exclusive with the other two commands. Unintended consequences may result when rotated CCW is mixed with other commands.

The samples of the print show only the normal size characters. Double-wide and double-high characters are printed in the same orientation. They may also be mixed on the same line.

| Upside Down (1B 7B *n)* | Rotated CW (1B 56 *n)* | Rotated CCW (1B 12) | Resulting Output |
|---|---|---|---|
| Canceled | Canceled | Cleared | A B C |
| Canceled | Set | X | ∀ ℞ ∪ |
| Set | Canceled | X | ∪ ℞ ∀ |
| Set | Set | X | ∪ ℞ ∀ |
| X | X | Set | ∀ ℞ ∪ |

**Note:**     The following print modes cannot be mixed on the same line:

1. Standard and compressed pitch
2. Vertical (normal) and rotated
3. Right-side up and upside down
4. Single high (normal) and double high

# Graphics Commands

These commands are used to enter and print graphics data and are described in order of their hexadecimal codes.

## Print Raster Graphics

**ASCII:**          DC1 *n1 … nk*

**Hexadecimal:**    11 *n1 … nk*

**Decimal:**        17 *n1 … n72*

**Value of *n*:**   *n1 … nk* = Data bytes

**Range of *n*:**   0 - 255

**Value of *k*:**   k = 72 : 80mm, k = 53 : 58mm

Prints one row of data. N1 … nk : bytes describing the line to print.

Example:

- MSComm1.Output = Chr$(&H11) & Chr$(05) & Chr$(255)

Exceptions:

Raster graphcs is not avalable in Page Mode

This is only available in 7194 Native Mode and 7197 Native Mode.

## Download BMP Logo

**ASCII:**          ESC (+*.BMP file data)

**Hexadecimal:**    1B (+*.BMP file data)

**Decimal:**        27 (+*.BMP file data)

**Value:**          Maximum width =       576

                    Maximum height =      512

Enters a BMP file data into RAM or Flash.

This command is used by sending the file data of a monochrome BMP file preceded by a 0 x 1B. The bit map is stored in the printer in the same manner as a down loaded bit image.

The downloaded BMP file can be printed by using the Print Downloaded Bit Image (1D 2F m) command.

Example:

1.   MSComm1.Output = Chr$(&H1B)

2.    Open bitmapfile For Binary As filehandle

3.    filecontent = Input(LOF(filehandle), filehandle)

4.     MSComm1.Output = filecontent & vbLf

5.    This last step is to use the print downloaded image command to print

Exceptions:

BMP file images that are not monochrome are ignored. This command is only valid for the receipt station.

This is only available in 7194 Native Mode and 7197 Native Mode.

Related Information:

See 1D 22 n (Select Memory Type to save logos.)

## Select Bit Image Mode

**ASCII:**            ESC * *m n*1 *n*2 *d*1 ... *d*n

**Hexadecimal:**      1B 2A *m n*1 *n*2 *d*1 ... *d*n

**Decimal:**          27 42 *m n*1 *n*2 *d*1 ... *d*n

Sets the print resolution and enters one line of graphics data into the print buffer. Excess data is accepted but ignored. Any print command is required to print the data, after which the printer returns to normal processing mode.

See the illustration graphic representation of the bit image.

Values:

| Value of *m* | Mode | No. of Dots (Vertical) | No. of Dots (Horizontal) | Number of Dots/Line |
|---|---|---|---|---|
| 0 | 8 Dot Single Density | 8 (68 DPI) | 0-288 (101DPI, 80mm) <br> 0-212 (101DPI, 58mm) | 8x288 (80mm) <br> 8x212 (58mm) |
| 1 | 8 Dot Double Density | 8 (68 DPI) | 0-576 (101DPI, 80mm) <br> 0-424 (101DPI, 58mm) | 8x576 (80mm) <br> 8x424 (58mm) |
| 32 | 24 Dot Single Density | 24 (203 DPI) | 0-288 (101DPI, 80mm) <br> 0-212 (101DPI, | 24x288 (80mm) <br> 24x212 |

| | | | (58mm) | (58mm) |
|---|---|---|---|---|
| 33 | 24 Dot Double Density | 24 (203 DPI) | 0-576 (101DPI, 80mm) | 24x576 (80mm) |
| | | | 0-424 (101DPI, 58mm) | 24x424 (58mm) |

Formulas:

8 Dot Single Density   $n1 + (256 \times n2)$
24 Dot Single Density  $3 \times [n1 + (256 \times n2)]$

8-Dot Single-Density Mode—Receipt

Receipt

Top of Bit Image
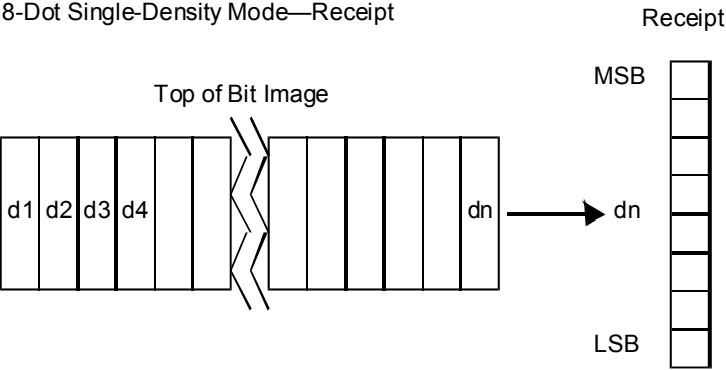


24-Dot Single-Density Mode—Receipt Only

Top of Bit Image
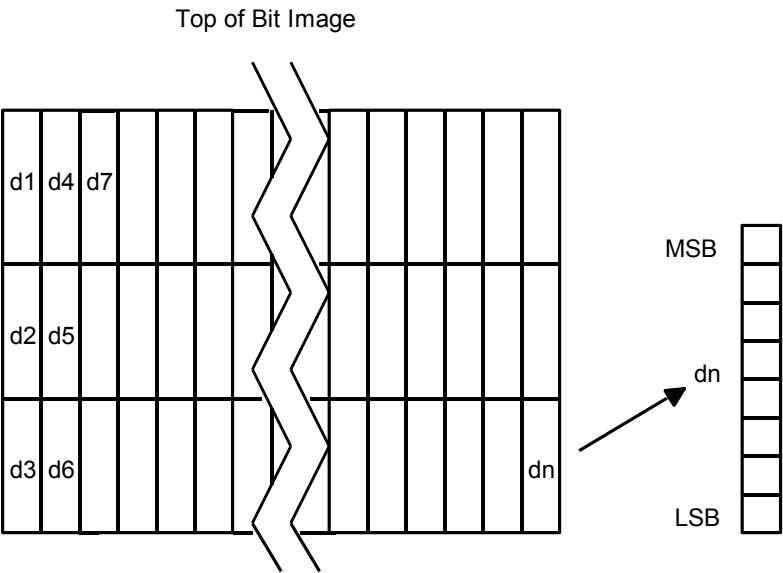
## Print Advanced Raster Graphics

**ASCII:**              ESC . *m n rl rh d1 … dn*

**Hexadecimal:**        1B 2E *m n rl rh d1 … dn*

**Decimal:**            27 46 *m n rl rh d1 … dn*

**Value of *m*:**       Horizontal offset from left margin = 8 x n dots

**Value of *n*:**       Number of data bytes that compose the raster

**Value of *r*:**       Number of times the raster has to be printed = 256 x *rh* + *rl*

**Value of *d*:**       *d1 … dn* = Data bytes

**Range:**              $0 \leq m, n \leq 72$ (80mm), $0 \leq m, n \leq 53$ (58mm)

                        $0 \leq r \leq 65536$

                        $0 \leq d1 … dn \leq 255$

Prints a horizontal raster of graphics data one or multiple times.

Horizontal offset and number of data bytes are variable and specified by parameters.

Example:

- MSComm1.Output = Chr$(&H1B) & Chr$(&H2E) & Chr$(10) & Chr$(100) & Chr$(2) & Chr$(10) & Chr$(&HFF). . .  & Chr$(&HFF)

Exceptions:

Advanced Raster graphics is not available in Page Mode.

## Select Single-Density Graphics

**ASCII:**              ESC K *n1 n2 d1 … d*n
**Hexadecimal:**        1B 4B *n1 n2 d1 ... d*n
**Decimal:**            27 75 *n1 n2 d1 ... d*n

**Value of *n*:**

| Value of *n* (8-Dot Single Density Mode) | Value of *n* (24-Dot Single Density Mode) | Value of *d* |
|---|---|---|
| $n1 + (256 \times n2)$ | $3 \times [n1 + (256 \times n2)]$ | Number of Bytes of Data (Printed Down, Then Across) |

Enters one line of 8-dot single-density graphics into the print buffer. Any print command is required to print the line, after which the printer returns to normal processing mode. The number of bytes sent is represented by the formulas in the table.

Each bit corresponds to one horizontal dot. Compare to Set Bit Image Mode (1B 2A, m=1) earlier in this document.

Example:

- MSComm1.Output = Chr$(&H1B) & Chr$(&H4B) & Chr$(10) & Chr$(100) Chr$(&HFF). . . & Chr$(&HFF)

### Select Double-Density Graphics

| | | |
|---|---|---|
| **ASCII:** | ESC Y *n*1 *n*2 *d*1 … *d*n | |
| **Hexadecimal:** | 1B 59 *n*1 *n*2 *d*1 ... *d*n | |
| **Decimal:** | 27 89 *n*1 *n*2 *d*1 ... *d*n | |

**Value of *n*:**

| Value of *n* (8-Dot Single Density Mode) | Value of *n* (24-Dot Single Density Mode) | Value of *d* |
|---|---|---|
| $n1 + (256 \times n2)$ | $3 \times [n1 + (256 \times n2)]$ | Number of Bytes of Data (Printed Down, Then Across) |

Enters one line of 8-dot double-density graphics into the print buffer. Any print command is required to print the line, after which the printer returns to normal processing mode. The number of bytes sent is represented by the formulas in the table.

Each bit corresponds to one horizontal dot. Compare to Set Bit Image Mode (1B 2A, m=1) earlier in this document.

Example:

- MSComm1.Output = Chr$(&H1B) & Chr$(&H59) & Chr$(10) & Chr$(100) Chr$(&HFF). . . & Chr$(&HFF)

### Select the Current Logo (Downloaded Bit Image)

**ASCII:**     GS # *n*

**Hexadecimal:**  1D 23 *n*

**Decimal:**    29 35 *n*

**Range of *n*:**   0 – 255

Selects a logo to be defined or printed. The active logo *n* remains in use until this command is sent again with a different logo *n*.

When this command precedes a logo definition, that definition is stored in Flash Memory as logo *n*. If there is already a different definition in Flash Memory for logo *n*, the first is inactivated and the new definition is used. The inactive definition is not erased from Flash and continues to take up space in Flash Memory.

When this command precedes a logo print command and *n* is different from the previously active logo selected, the printer retrieves the logo definition for *n* from Flash Memory and prints it. If there is no definition for logo *n*, then no logo is printed.

In the case of a previously existing application that expects only one possible logo, the printer will not receive the Select Current Logo (1D 23 *n*) command. In this case, the printer assigns 0 as the active logo identifier. It automatically stores any new logo definition in Flash Memory as logo 0, inactivating any previous logo 0 definition. If the Flash Memory space available for logos fills up with inactive logo 0 definitions, the firmware erases the old definitions at the next power cycle. This is the only case in which the printer erases Flash Memory without an application command.

In the case of a new application using multiple logos, the Select Current Logo (1D 23 *n*) command is used. After that, the printer no longer automatically erases the logo definition Flash Memory page when it fills with multiple definitions. A new application using multiple logos, writing a user-defined character set into Flash Memory, or both, is responsible for erasing the logo and user-defined character set Flash Memory page when the logo area is full or before a new character set is defined.

Example:

- MSComm1.Output = Chr$(&H1D) & Chr$(&H23) & Chr$(n)

By default, 7193 Emulation loads downloaded bit image to SRAM, while 7194 Native Mode and 7197 Native Mode loads them to Flash.

## Define Downloaded Bit Image

**ASCII:** GS * *n*1 *n*2 *d*1 ... *d*n]

**Hexadecimal:** 1D 2A *n*1 *n*2 *d*1 ... *d*n]

**Decimal:** 29 42 *n*1 *n*2 *d*1 ... *d*n

**Value of *n1*:** See the following table.

**Value of *n2*:** See the following table.

**Value of *d*:** See the following table.

| Value of *n*1 | Value of *n*2 | Value of *d* |
|---|---|---|
| 1-72 (8 x *n*1 = Number of Horizontal Dot Columns) | 1-64 (Number of Vertical Bytes)* | Bytes of Data (Printed Down Then Across) |

*The number of bytes sent is represented by the following formula:

$n = 8 \times n1 \times n2$ ($n1 \times n2$ must be less than or equal to 4608).

Enters a downloaded bit image (such as a logo) into RAM or Flash with the number of dots specified by *n*1 and *n*2, unless loaded into Flash. The downloaded bit image is available until power is turned off, another bit image is defined, or either Initialize Printer (1B 40), or Define User-Defined Character Set (1B 26), command is received.

See the illustration on the following page for a graphic representation of the downloaded bit image.
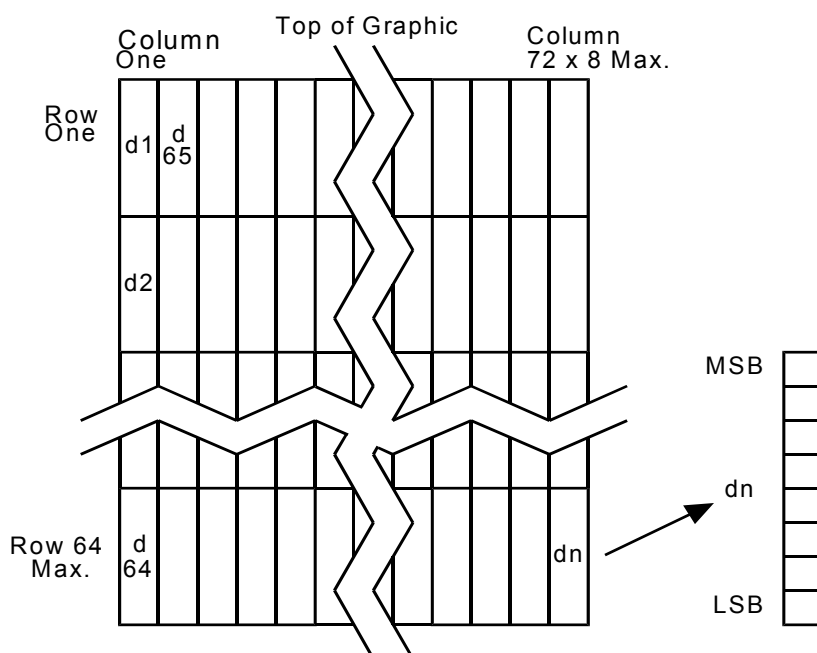
Exceptions:

See the illustration for the Print Downloaded Bit Image command (1D 2F) for a representation of the bit image.

Related Information:

See 1D 22 n (Select Memory Type to store logos) and 1D 23 n (Select the Current Logo.)

For the 7194 Native Mode and 7197 Native Mode of operation, if multiple logos are to be defined and used, this command should b preceded by the select current logo command to define the number by which this downloaded logo is to be reference.

### Print Downloaded Bit Image

| ASCII: | GS / *m* |
|---|---|
| Hexadecimal: | 1D 2F *m* |
| Decimal: | 29 47 *m* |
| Value and Range of *m*: | |

| Value of *m* | Print Mode | Vertical DPI[1] | Horizontal DPI* |
|---|---|---|---|
| 0 | Normal | 203 | 203 |
| 1 | Double Wide | 203 | 101 |
| 2 | Double High | 101 | 203 |
| 3 | Quadruple | 101 | 101 |

[1]Dot density measured in dots per inch

Prints a downloaded bit image in RAM or Flash on the receipt station at a density specified by *m*. It is ignored if any data is in the print buffer, if the downloaded bit image is undefined, or if the data defined exceeds one line.

See the illustration for a representation of the bit image.
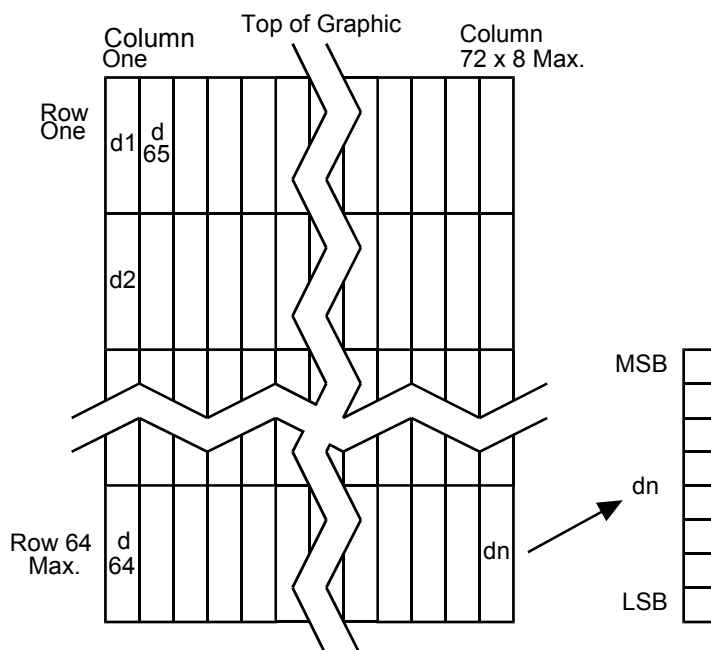


Example:

• MSComm1.Output = Chr$(&H1D) & Chr$(&H2F) & Chr$(m)

Related Information:

See 1D 22 n (Select Memory Type to store logos) and 1D 23 n (Select the Current Logo.)

## Convert 6 Dots/mm Bitmap to 8 Dots/mm Bitmap

**ASCII:**            US EOT $n$

**Hexadecimal:**    1F 04 $n$

**Decimal:**         31 04 $n$

**Value:**            0 = Off

                      1 = On

**Default:**          0 (Off)


Selects or cancels 6 dot/mm Emulation Mode.

When the 6 dot/mm emulation is selected, logos and graphics are expanded horizontally and vertically to emulate their size on a 6 dot/mm printer. The horizontal positioning commands also emulate positioning on a 6 dot/mm printer.

Example:

- MSComm1.Output = Chr$(&H1F) & Chr$(&H04) & Chr$(n)

This command is available in 7194 native mode only and 7197 Native Mode.

# Status Commands

## Status Command Introduction

The 7197 has three methods of providing status to the application. These methods are through Batch Status Commands, Real Time Status Commands, and Auto Status Back. An application may use one or more of these methods to understand the current status of the printer. A brief description of each of these methods follows.

**Batch Status Commands** – These commands are sent to the printer and stored in the printer's buffer. Once the printer has processed all the previous commands these commands are processed and the proper status is returned to the application. In the event a condition causes the printer to go BUSY, it stops processing commands from the printer buffer. If a Batch Status Command remained in the buffer during this busy condition, it would not be processed. In fact, no Batch Commands are processed while the printer is in this state.

**Real-Time Commands** – These commands are sent to the printer and are NOT stored in the printer's buffer. Instead, they are acted on immediately (regardless of the printer's BUSY status) and their response (if any) is returned to the application. This gives the application the ability to query the printer when it is in a busy state in order to correct whatever fault has occurred.

**Auto Status Back** – This mechanism allows the application developer to program the printer to automatically respond with a four byte status when certain conditions in the printer change.

Please see the subsequent sections for a more detailed description of these status commands. At the end of this Status Commands section is a page entitled "Recognizing Data from the Printer". This describes how to interpret what command or setting (in the case of Auto Status Back) triggered a response from the printer.

## Batch Mode

For RS-232C printers, these commands enable the printer to communicate with the host computer following the selected handshaking protocol, either DTR/DSR or XON/XOFF. They are stored in the printer's data buffer as they are received, and are handled by the firmware in the order in which they are received.

When a fault occurs, the printer will go busy at the RS-232C interface and not respond to any of the Batch Mode Printer Status commands. If the fault causing the busy condition can be cleared, such as by loading paper, or letting the thermal print head cool down, the printer will resume processing the data in its receive buffer.

## Transmit Peripheral Device Status

**ASCII**:            ESC u 0

**Hexadecimal**:    1B 75 0

**Decimal:**        27 117 0

|  | Bit 0 | Bit 1 |
|---|---|---|
| **Return Value:** | 1 = Drawer 1 closed | 1 = Drawer 2 closed |
|  | 0 = Drawer 1 open | 0 = Drawer 2 open |
|  | (Bits 2-7 are not used) |  |

Transmits current status of the cash drawers. One byte is sent to the host computer. In DTR/DSR protocol the printer waits for DSR = SPACE. If a drawer is not connected, the status will indicate it is closed.

Example:

- MSComm1.Output = Chr$(&H1B) & Chr$(&H75) & Chr$(&H0)

## Transmit Printer Status

**ASCII:**            ESC v

**Hexadecimal:**    1B 76

**Decimal:**        27 118

Sends status data to the host computer. The printer sends one byte to the host computer when it is not busy or in a fault condition. In DTR/DSR protocol, the printer waits for DSR = SPACE.

**Status Byte (RS-232C)**

| Bit | Function | 0 Signifies | 1 Signifies |
|-----|----------|-------------|-------------|
| 0 | Receipt Paper | Ok | Low |
| 1 | Receipt Cover or Front Cover | Closed | Open |
| 2 | Receipt Paper | Ok | Out |
| 3 | Knife Position | Ok | Jam |
| 4 | Not Used | Fixed to Zero | Fixed to Zero |
| 5 | Temperature | In valid range | Too hot or too cold |
| 6 | Voltage | In valid range | Too high or too low |
| 7 | Not Used | Fixed to Zero | Fixed to Zero |

Example:

- MSComm1.Output = Chr$(&H1B) & Chr$(&H76)

Related Information:

See Real Time Commands, in this document for details about fault condition reporting.

## Transmit Printer ID

**ASCII**  GS I *n*

**Hexadecimal**  1D 49 *n*

**Decimal**  29 73 *n*

**Value of *n***  1, 49 = Printer model ID

2, 50 = Type ID

3, 51 = ROM version ID

4, 52 = Logo definition

**Transmits the printer ID specified by *n* as follows:**

| N | Printer ID | Specification | ID (hexadecimal) |
|---|------------|---------------|------------------|
| 1, 49 | Printer model ID | NCR 7194 | 0x24 |
| 1, 49 | Printer model ID | NCR 7193 | 0x03 |
| 1, 49 | Printer model ID | NCR 7197 | 0xA2 |
| 2, 50 | Type ID | Installed options | Refer to the table below |
| 3, 51 | ROM version ID | ROM version | 0x00 |
| 4, 52 | Logo Definition | Logo Definition | Refer to table below |

**Type ID (n=2)**

| Bit | Off/On | Hex | Decimal | Function |
|-----|--------|-----|---------|----------|
| 0 | Off | 00 | 0 | No two-byte character code installed. |
|   | On | 01 | 1 | Two-byte character code installed. |
| 1 | Off | 00 | 0 | No knife installed. |
|   | On | 02 | 2 | Knife installed. |
| 2 | - | - | - | Undefined |
| 3 | - | - | - | Undefined |
| 4 | Off | 00 | 0 | Not used. Fixed to Off. |
| 5 | - | - | - | Undefined |
| 6 | - | - | - | Undefined |
| 7 | Off | 00 | 0 | Not used. Fixed to Off. |

**Type ID (n=4)**

| Bit | Off/On | Hex | Decimal | Function |
|---|---|---|---|---|
| 0 | Off | 00 | 0 | No logo definition loaded by application. |
|   | On | 01 | 1 | Logo loaded by application. |
| 1 | - | - | - | Undefined |
| 2 | - | - | - | Undefined |
| 3 | - | - | - | Undefined |
| 4 | Off | 00 | 0 | Not used. Fixed to Off. |
| 5 | - | - | - | Undefined |
| 6 | - | - | - | Undefined |
| 7 | Off | 00 | 0 | Not used. Fixed to Off. |

Example:

- MSComm1.Output = Chr$(&H1D) & Chr$(&H49) & Chr$(n)

## Transmit Printer ID, Remote Diagnostics Extension

**ASCII**:          GS I @ *n*

**Hexadecimal**:    1D 49 40 *n*

**Decimal:**        29 73 64 *n*

**Values of *n*:**   Refer to table

**Range of *n*:**    32 – 255

                    (not all defined but reserved)

Performs the remote diagnostic function specified by *n*.

Eighteen remote diagnostic items are defined: eight printer ID items and ten printer tally items. A group of four remote diagnostic functions is assigned to each diagnostic item. Most of the diagnostic items are maintained in non-volatile memory (NVRAM), but some are maintained in read-only memory (ROM).

The table that follows describes the variables.

The first item group in the table includes an example of data to send and to receive. Data sent from the host to write to NVRAM must contain all digits required by the remote diagnostic item. All data must be ASCII. The printer returns all ASCII data. It is preceded by the parameter *n* to identify the diagnostic item and is followed by a Carriage Return (0D) to signify the end of the data.

The command performs the remote diagnostic function specified by *n* as described in the following table.

| Value of *n* | | | Remote Diagnostic Item | Function |
|---|---|---|---|---|
| ASC | Hex | Dec | | |
| Space | 20 | 32 | Serial #,  10 digit ASCII | Write to NVRAM  Example, send 14 bytes to printer: GS  I  @ 0x20 1234567890 |
| ! | 21 | 33 | Serial # ,  10 digit ASCII | Write to NVRAM, and print on receipt to verify  Example, send 14 bytes to printer: GS  I  @ ! 1234567890  This will print on receipt: Serial # written: 1234567890 |
| " | 22 | 34 | Serial # | Not available, cannot clear Serial # item |
| # | 23 | 35 | Serial # | Return Serial #, preceded by *n* to identify  Printer returns 12 bytes in above example: #1234567890<CR> |
| $ | 24 | 36 | Class/model #,  15 digit ASCII | Write to NVRAM |
| % | 25 | 37 | Class/model # | Write to NVRAM, and print on receipt to verify |
| ' | 27 | 39 | Class/model # | Return Class/model #, returns 17 bytes |
| + | 2B | 43 | Boot firmware part #, 12 digit ASCII | Return Boot firmware part #, returns 14 bytes |
| / | 2F | 47 | Boot firmware CRC, 4 digit ASCII | Return Boot firmware CRC, returns 6 bytes |
| 3 | 33 | 51 | Flash firmware part #, 12 digit ASCII | Return Flash firmware part #, returns 14 bytes |
| 7 | 37 | 55 | Flash firmware CRC, 4 digit ASCII | Return Flash firmware CRC, returns 6 bytes |
| Ç | 80 | 128 | Receipt lines tally, 8 digit ASCII numeric, max 99,999,999 | Write to NVRAM  Example, send 12 bytes to printer: GS  I  @ Ç00010000  To set receipt lines tally to 10,000 |
| ü | 81 | 129 | Receipt lines tally | Write to NVRAM, and print on receipt to verify  Example, send 12 bytes to printer: GS  I  @ ü00010000  This will print on receipt: Receipt tally written:  10,000 |
| é | 82 | 130 | Receipt lines tally | Clear receipt lines tally to 0 |
| â | 83 | 131 | Receipt lines tally | Return receipt lines tally, preceded by *n* to identify  Printer returns 10 bytes in above example: â00010000<CR> |

| Value of *n* | | | Remote Diagnostic Item | Function |
| ASC | Hex | Dec | | |
|---|---|---|---|---|
| ä | 84 | 132 | Knife cut tally, 8 digit ASCII numeric, max 99,999,999 | Write to NVRAM |
| à | 85 | 133 | Knife cut tally | Write to NVRAM, and print on receipt to verify |
| å | 86 | 134 | Knife cut tally | Clear knife cut tally to 0 |
| ç | 87 | 135 | Knife cut tally | Return knife cut tally, returns 10 bytes |
| É | 90 | 144 | Hours on tally, 8 digit ASCII numeric, max 99,999,999 | Write to NVRAM |
| æ | 91 | 145 | Hours on tally | Write to NVRAM, and print on receipt to verify |
| Æ | 92 | 146 | Hours on tally | Clear Hours on tally to 0 |
| ô | 93 | 147 | Hours on tally | Return Hours on tally, returns 10 bytes |
| ù | 97 | 151 | Boot firmware version | Return Boot firmware version, returns 6 bytes |
| ú | A3 | 163 | Flash firmware version | Return Flash firmware version, returns 6 bytes |
| ñ | A4 | 164 | Flash cycles tally, 8 digit ASCII numeric, max 99,999,999 | Write to NVRAM |
| Ñ | A5 | 165 | Flash cycles tally | Write to NVRAM, and print on receipt to verify |
| a̲ | A6 | 166 | Flash cycles tally | Clear Flash cycles cut tally to 0 |
| o̲ | A7 | 167 | Flash cycles tally | Return Flash cycles cut tally, returns 10 bytes |
| ¿ | A8 | 168 | Knife jams tally, 8 digit ASCII numeric, max 99,999,999 | Write to NVRAM |
| ⌐ | A9 | 169 | Knife jams tally | Write to NVRAM, and print on receipt to verify |
| ¬ | AA | 170 | Knife jams tally | Clear Knife jams tally to 0 |
| ½ | AB | 171 | Knife jams tally | Return Knife jams tally, returns 10 bytes |
| ¼ | AC | 172 | Cover openings tally, 8 digit ASCII numeric, max 99,999,999 | Write to NVRAM |
| ¡ | AD | 173 | Cover openings tally | Write to NVRAM, and print on receipt to verify |
| « | AE | 174 | Cover openings tally | Clear Cover openings tally to 0 |

| Value of *n* | | | Remote Diagnostic Item | Function |
|---|---|---|---|---|
| ASC | Hex | Dec | | |
| » | AF | 175 | Cover openings tally | Return Cover openings tally, returns 10 bytes |
| ▉ | B2 | 178 | Max Temperature tally | Clear Max temp tally |
| \| | B3 | 179 | Max Temperature tally | Return Max Temperature tally, returns 10 bytes |

Example:

- MSComm1.Output = Chr$(&H1D) & Chr$(&H49) & Chr$(&H40) & Chr$(n)

## Transmit Status

**ASCII**:          GS r *n*

**Hexadecimal**:    1D 72 *n*

**Decimal:**        29 114 *n*

**Value of *n*:**   1, 49 = printer status

2, 50 = cash drawer status

4, 52 = Flash Memory status

Transmits the status specified by *n*. This is a batch mode command which transmits the response after all prior data in the receive buffer has been processed. There may be a time lag between the printer receiving this command and transmitting the response, depending on the receive buffer status.

When DTR/DSR RS232C communications handshaking control is selected, the printer transmits the one byte response only when the host signal DSR indicates it is ready to receive data.

When XON/XOFF RS232C communications handshaking control is selected, the printer transmits the one byte response regardless of the host signal DSR.

When Auto Status Back (ASB) is enabled using the Enable/Disable Automatic Status Back command (1D 61), the status transmitted by this command (Transmit Status) and the ASB status must be differentiated according to the information found in Recognizing Data from the Printer. This is found in the Real Time Commands section of this document.

The status bytes to be transmitted are described in the following four tables.

**Printer Status (*n* = 1 or *n* = 49)**

| Bit | Off/On | Hex | Decimal | Status for Transmit Status |
|-----|--------|-----|---------|----------------------------|
| 0   | Off    | 00  | 0       | Paper present              |
|     | On     | 01  | 1       | Paper exhausted.           |
| 1   | Off    | 00  | 0       | Cover closed               |
|     | On     | 02  | 2       | Cover open                 |
| 2   | Off    | 00  | 0       | Paper present              |
|     | On     | 04  | 4       | Paper exhausted.           |
| 3   | -      | -   | -       | Undefined                  |
| 4   | Off    | 00  | 0       | Not used. Fixed to off.    |
| 5   | -      | -   | -       | Undefined                  |
| 6   | -      | -   | -       | Undefined                  |
| 7   | Off    | 00  | 0       | Not used. Fixed to off.    |

**Cash Drawer Status (*n* = 2 or *n* = 50)**

| Bit | Off/On | Hex | Decimal | Status for Transmit Status       |
|-----|--------|-----|---------|----------------------------------|
| 0   | Off    | 00  | 0       | One or both cash drawers open.   |
|     | On     | 01  | 1       | Both cash drawers closed.        |
| 1   | Off    | 00  | 0       | One or both cash drawers open.   |
|     | On     | 02  | 2       | Both cash drawers closed.        |
| 2   | -      | -   | -       | Undefined                        |
| 3   | -      | -   | -       | Undefined                        |
| 4   | Off    | 00  | 0       | Not used. Fixed to off.          |
| 5   | -      | -   | -       | Undefined                        |
| 6   | -      | -   | -       | Undefined                        |
| 7   | Off    | 00  | 0       | Not used. Fixed to off.          |

**Flash Memory Status (*n* = 4 or *n* = 52)**

| Bit | Off/On | Hex | Decimal | Status for Transmit Status |
|-----|--------|-----|---------|----------------------------|
| 0   | Off    | 00  | 0       | Undefined. Fixed to off.   |
| 1   | Off    | 00  | 0       | Undefined. Fixed to off.   |
| 2   | Off    | 00  | 0       | Not used. Fixed to off.    |
| 3   | Off    | 00  | 0       | Flash logo area adequate. Definition stored. |
|     | On     | 08  | 8       | Flash logo area not adequate for recent definition. |
| 4   | Off    | 00  | 0       | Not used. Fixed to off.    |
| 5   | Off    | 00  | 0       | No thermal user-defined characters written to Flash |
|     | On     | 20  | 32      | Thermal user-defined characters written to Flash. |
| 6   | Off    | 00  | 0       | Not used. Fixed to off.    |
| 7   | Off    | 00  | 0       | Not used. Fixed to off.    |

**Range of *n*:**                    1 – 4
                                     49 - 52

Example:

- MSComm1.Output = Chr$(&H1D) & Chr$(&H72) & Chr$(n)

Exceptions:

When *n* is out of the specified range, the command is ignored.

## Send Printer Software Version

**ASCII**:              US V

**Hexadecimal**:     1F 56

**Decimal:**         31 86

The printer returns 8 bytes containing the boot and Flash software version. The first 4 bytes returned are an ASCII string for the boot version. The second 4 bytes are an ASCII string for the boot version. Example: for 1.234.56(8bytes), the boot version is 1.23 and the Flash version is 4.56.

Example:

- MSComm1.Output = Chr$(&H1F) & Chr$(&H56)

## Recognizing Data from the Printer

An application sending various Real Time and non-Real Time commands to which the printer responds can determine which command a response belongs to by the table below.

Responses to Transmit Peripheral Device Status (1B 75) and Transmit Paper Sensor Status (1B 76) are non-Real Time responses and will arrive in the order in which they were solicited.

| Batch Mode Response | | Response Recognized By: | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| **ASCII** | **HEX** | | | | | | | | | |
| ESC u 0 | 1B 75 0 | 0 | 0 | 0 | 0 | 0 | 0 | x | x | Binary |
| ESC v | 1B 76 | 0 | 0 | 0 | 0 | 0 | x | x | x | Binary |
| GS I *n* | 1D 49 n | 0 | x | x | 0 | x | x | x | x | Binary |
| GS r *n* | 1D 72 n | 0 | x | x | 0 | x | x | x | x | Binary |

| Real-Time Response | | Response Recognized By: | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| **ASCII** | **HEX** | | | | | | | | | |
| GS EOT *n* | 1D 04 n | 0 | x | x | 1 | x | x | 1 | 0 | Binary |
| DLE EOT *n* | 10 04 n | 0 | x | x | 1 | x | x | 1 | 0 | Binary |
| GS ENQ | 1D 05 | 1 | x | x | x | x | x | x | x | Binary |

| XON | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | Binary |
|-----|---|---|---|---|---|---|---|---|--------|
| XOFF | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 1 | Binary |

| **Auto Status Back (ASB)** | **Response Recognized By:** | | | | | | | | |
|-----|---|---|---|---|---|---|---|---|--------|
| ASB Byte 1 | 0 | x | x | 1 | x | x | 0 | 0 | Binary |
| ASB Bytes 2-4 | 0 | x | x | 0 | x | x | x | x | Binary |

# Real Time Commands

These commands provide an application interface to the printer even when the printer is not handling other commands (RS-232C communication interface only):

1.  Real Time Status Transmission (GS Sequence and DLE Sequence)

2.  Real Time Request to Printer (GS Sequence and DLE Sequence)

3.  Real Time Printer Status Transmission

The Batch Mode Printer Status commands are placed in the printer's data buffer as they are received and handled by the firmware in the order in which they are received. If the paper exhausts while printing data that was in the buffer ahead of the status command, the printer goes busy at the RS-232C interface and suspends processing the data in the buffer until paper is reloaded. This is true for all error conditions: knife home error, thermal print head overheat, etc.

The Real Time commands are implemented in two ways to correct these problems. Both implementations offer the same functionality; which one you choose depends on the current usage of your application.

## Preferred Implementation

For a new application the GS (1D) sequences are recommended to avoid possible misinterpretation of a DLE (0x10) sequence as a Clear Printer (0x10 0, ASCII DLE NUL) command.

An application using these GS (1D) sequences, does not need to distinguish for the printer between the new real time commands and the Clear Printer command. This implementation is ideal for an existing 7193 application that already uses the Clear Printer command or for a new application being developed.

## Alternate Implementation

The alternate implementation uses the DLE (0x10) sequences as implemented on other printers. An application using these DLE (0x10) sequences and the original 7193 Clear Printer command (0x10) must distinguish for the printer between the new real time commands and the Clear Printer command by adding a NUL (0x00) to the Clear Printer command.

An application using these DLE (0x10) sequences must also send the second byte of the sequence within 100 milliseconds of the first, to prevent the first byte being mistaken for a Clear Printer command.

## Rules for Using Real Time Commands

Three situations must be understood when using real time commands.

First, the printer executes the Real Time command upon receiving it and will transmit status regardless of the condition of the DSR signal.

Second, the printer transmits status whenever it recognizes a Real Time Status Transmission command sequence, even if that sequence happens to occur naturally within the data of another command, such as graphics data.

In this case the sequence will also be handled correctly as the graphics data it is intended to be when the graphics command is executed from the buffer.

Third, care must be taken not to insert a Real Time command into the data sequence of another command that consists of two or more bytes.

In this case the printer will use the real time command sequence bytes instead of the other command's parameter bytes when finally executing that other command from the buffer; the other command will NOT be executed correctly.

These three situations generally preclude use of standard DOS drivers for the serial communication ports when using real time commands.

## Moving Data Through the Buffer

Another consideration is that an application should take care not to let the buffer fill up with real time commands when the printer is busy at the RS-232C interface. A busy condition at the RS-232C interface can be determined by bit 3 of the response to 1D 05 or 1D 04 1 or 10 04 1. The reason for a particular busy condition can be determined by other responses to 1D 04 n or 10 04 n.

Although the printer responds to Real Time commands when it is busy, it will place them into the buffer behind any other data there, and flush them out in the order in which they were received. When the printer is busy due simply to buffer full (that is, it can't print data as fast as it can receive it), then data continues to be processed out of the buffer at approximately print speed and the Real Time commands will eventually get flushed out.

When the printer is busy due to an error condition, then data stops being processed out of the buffer until the condition clears one way or another. In either case, but more quickly in the case of an error condition, the buffer can fill with real time commands.

When the DLE sequences are being used, the last byte stored when the buffer fills up could be the DLE code, with no room for the subsequent EOT or ENQ. When this lone DLE byte is finally processed out of the buffer it will be interpreted as a Clear Printer command.

Similarly, when the GS sequences are being used, the last byte stored when the buffer fills up could be the GS code, with no room for the subsequent EOT or ETX or ENQ. When this lone GS byte is finally processed out of the buffer it will use the next byte, whatever it is, as the second byte in its GS sequence.

To guard against this situation, an application should determine the cause of a busy condition and take appropriate action or pace further real time commands to avoid filling the buffer. There are a minimum of 256 bytes available in the printer's buffer when it goes busy.

### Real Time Status Transmission

|  | GS Sequence | DLE Sequence |
|---|---|---|
| **ASCII**: | GS EOT *n* | DLE EOT *n* |
| **Hexadecimal**: | 1D 04 *n* | 10 04 *n* |
| **Decimal:** | 29 4 *n* | 16 4 *n* |
| **Value of *n*:** | GS/DLE Sequence | |

1 = Transmit printer status

2 = Transmit RS-232C busy status

3 = Transmit error status

4 = Transmit receipt paper status

Transmits the selected one byte printer status specified by *n* in Real Time according to the following parameters. This command includes two sequences: GS and DLE and using either or will produce the same result.

Example:

- MSComm1.Output = Chr$(&H1D) & Chr$(&H04) & Chr$(n)

Exceptions:

The command is ignored if *n* is out of range.

An application using the DLE sequence must send EOT within 100 milliseconds of DLE or the printer will misinterpret the DLE and execute a Clear Printer command. Avoid this possibility by using the 1D 04 *n* sequence, which is handled exactly the same as 10 04 *n*.

Related Information:
1 = Transmit Printer Status

| Bit | Status | Hex | Decimal | Function |
|---|---|---|---|---|
| 0 | Off | 00 | 0 | Fixed to Off |
| 1 | On | 02 | 2 | Fixed to On |
| 2 | Off | 00 | 0 | One or both cash drawers open |
|  | On | 04 | 4 | Both cash drawers closed |
| 3 | Off | 00 | 0 | Not busy at the RS-232C interface |
|  | On | 08 | 8 | Printer is Busy at the RS-232C interface |
| 4 | On | 10 | 16 | Fixed to On |
| 5 | - | - | - | Undefined |
| 6 | - | - | - | Undefined |
| 7 | Off | 00 | 0 | Fixed to Off |

2 = Transmit RS-232C Busy Status

| Bit | Status | Hex | Decimal | Function |
|-----|--------|-----|---------|----------|
| 0 | Off | 00 | 0 | Fixed to Off |
| 1 | On | 02 | 2 | Fixed to On |
| 2 | Off | 00 | 0 | Cover closed |
| | On | 04 | 4 | Cover open |
| 3 | Off | 00 | 0 | Paper Feed Button is not pressed |
| | On | 08 | 8 | Paper Feed Button is pressed |
| 4 | On | 10 | 16 | Fixed to On |
| 5 | Off | 00 | 0 | Printing not stopped due to paper condition |
| | On | 20 | 32 | |
| | | | | Printing stopped due to paper condition |
| 6 | Off | 00 | 0 | No error condition |
| | On | 40 | 64 | Error condition exists in the printer |
| 7 | Off | 00 | 0 | Fixed to Off |

3 = Transmit Error Status

| Bit | Status | Hex | Decimal | Function |
|-----|--------|-----|---------|----------|
| 0 | Off | 00 | 0 | Fixed to Off |
| 1 | On | 02 | 2 | Fixed to On |
| 2 | Off | 00 | 0 | Fixed to Off |
| 3 | Off | 00 | 0 | No knife error |
| | On | 08 | 8 | Knife error occurred |
| 4 | On | 10 | 16 | Fixed to On |
| 5 | Off | 00 | 0 | No unrecoverable error |
| | On | 20 | 32 | Unrecoverable error occurred |
| 6 | Off | 00 | 0 | Thermal print head temp./power supply voltage are in range |
| | On | 40 | 64 | Thermal print head temp./power supply voltage are out of range |
| 7 | Off | 00 | 0 | Fixed to Off |

4 = Transmit Receipt Paper Status

| Bit | Status | Hex | Decimal | Function |
|-----|--------|-----|---------|----------|
| 0 | Off | 00 | 0 | Fixed to Off |
| 1 | On | 02 | 2 | Fixed to On |
| 2 | Off | 00 | 0 | Receipt paper adequate |
| | On | 04 | 4 | Receipt paper low |
| 3 | Off | 00 | 0 | Receipt paper adequate |
| | On | 08 | 8 | Receipt paper low |

| | | | | |
|---|---|---|---|---|
| 4 | On | 10 | 16 | Fixed to On |
| 5 | Off | 00 | 0 | Receipt paper present |
| | On | 20 | 32 | Receipt paper exhausted |
| 6 | Off | 00 | 0 | Receipt paper present |
| | On | 40 | 64 | Receipt paper exhausted |
| 7 | Off | 00 | 0 | Fixed to Off |

## Real Time Request to Printer

| | GS Sequence | | DLE Sequence |
|---|---|---|---|
| **ASCII**: | GS ETX *n* | or | DLE ENQ *n* |
| **Hexadecimal**: | 1D 03 *n* | or | 10 05 *n* |
| **Decimal:** | 29 3 *n* | or | 16 5 *n* |
| **Value of *n*:** | 1 = Recover and restart | | |
| | 2 = Recover and clear buffers | | |

The printer responds to a request from the host specified by *n*. This command includes two sequences: GS and DLE. The operations performed depend on the value of *n*, according to the following parameters.

*n* = 1:

Restarts printing from the beginning of the line where an error occurred, after recovering from the error. Print settings that are normally preserved from line to line, such as character height and width, are still preserved with this command. This sequence is ignored except when the printer is busy due to an error condition.

If the receipt is selected, this command will attempt recovery from a knife error. Other errors associated with the receipt, such as paper out or print head overheating, can be recovered from only by clearing the specific condition, such as loading paper or letting the print head cool down.

*n* = 2:

Recovers from an error after clearing the receive and print buffers. Print settings that are normally preserved from line to line, such as character height and width, are still preserved with this command. This sequence is ignored except when the printer is busy due to an error condition.

Example:

- MSComm1.Output = Chr$(&H1D) & Chr$(&H03) & Chr$(n)

Exceptions:

The command is ignored if *n* is out of range

An application using the DLE sequence must send ENQ within 100 milliseconds of DLE or the printer will misinterpret the DLE and execute a Clear Printer command. Avoid this possibility by using the 1D 03 n sequence that is handled exactly the same as 10 05 n.

## Real Time Printer Status Transmission

**ASCII:**         GS ENQ

**Hexadecimal:**   1D 05

**Decimal:**       29 5

Transmits one byte status of the printer in real time.

Value of Byte:

| Bit | Status | Hex | Decimal | Function |
|-----|--------|-----|---------|----------|
| 0 | Off | 00 | 0 | Receipt paper adequate |
|   | On | 01 | 1 | Receipt paper low |
| 1 | Off | 00 | 0 | Receipt paper adequate |
|   | On | 02 | 2 | Receipt paper low |
| 2 | Off | 00 | 0 | Cover closed |
|   | On | 04 | 4 | Cover open |
| 3 | Off | 00 | 0 | Not busy at the RS-232C interface |
|   | On | 08 | 8 | Printer is busy at the RS-232C interface |
| 4 | Off | 00 | 0 | One or both cash drawers open |
|   | On | 1 | 16 | Both cash drawers closed |
| 5 | Off | 00 | 0 | Fixed to off |
| 6 | Off | 00 | 0 | No error condition |
|   | On | 40 | 64 | Error condition exists in the printer |
| 7 | On | 00 | 0 | Fixed to on |

Example:

- MSComm1.Output = Chr$(&H1D) & Chr$(&H05)

# Auto Status Back Commands

### Select or Cancel Automatic Status Back

| | |
|---|---|
| **ASCII**: | GS a *n* |
| **Hexadecimal**: | 1D 61 *n* |
| **Decimal:** | 29 97 *n* |
| **Value of *n*:** | Status of ASB |

Enables or disables automatic status back (ASB) and specifies the status items. This command is a batch mode command; that is, it is processed after all prior data in the receive buffer has been processed. There may be a time lag between the printer receiving this command and changing the ASB response, depending on the receive buffer status.

If any of the status items listed are selected, ASB is enabled and the printer automatically transmits 4 status bytes whenever the selected status changes. If no status is selected, ASB is disabled. All four status bytes are transmitted without checking DSR.

If the error status is enabled, a change in the following conditions will trigger the ASB:

1. Cash Drawer
2. Receipt Cover
3. Knife Error
4. Out-of-Range Print head Temperature
5. Out-of-Range Voltage
6. Paper Exhaust Status

The bits of *n* are defined in the table.

| Bit | Off/On | Hex | Decimal | Status for ASB |
|---|---|---|---|---|
| 0 | Off | 00 | 0 | Cash drawer status disabled. |
| | On | 01 | 1 | Cash drawer status enabled. |
| 1 | Off | 00 | 0 | RS-232C Busy status disabled. |
| | On | 02 | 2 | RS-232C Busy status enabled. |
| 2 | Off | 00 | 0 | Error status disabled. |
| | On | 04 | 4 | Error status enabled. |
| 3 | Off | 00 | 0 | Receipt paper roll status disabled. |
| | On | 08 | 8 | Receipt paper roll status enabled. |
| 4 | - | - | - | Undefined |
| 5 | - | - | - | Undefined |
| 6 | - | - | - | Undefined |
| 7 | - | - | - | Undefined |

**Default:**          0 (ASB disabled)

Example:

- MSComm1.Output = Chr$(&H1D) & Chr$(&H61) & Chr$(n)

Exceptions

If *n* = 0, ASB is disabled.

Related Information

When Auto Status Back (ASB) is enabled using this command, the status transmitted by other commands and the ASB status are differentiated according to the information found in Recognizing Data from the printer, (in the Real Time Commands section in this chapter). The status bytes to be transmitted are described in the following four tables.

*Byte 1* =   printer information
*Byte 2* =   error information
*Byte 3* =   paper sensor information
*Byte 4* =   paper sensor information

**First Byte (Printer Information)**

| Bit | Off/On | Hex | Decimal | Status for ASB |
|-----|--------|-----|---------|----------------|
| 0 | Off | 00 | 0 | Not used. Fixed to off. |
| 1 | Off | 00 | 0 | Not used. Fixed to off. |
| 2 | Off | 00 | 0 | One or both cash drawers open. |
|   | On | 04 | 4 | Both cash drawers closed. |
| 3 | Off | 00 | 0 | Not Busy at the RS232C interface. |
|   | On | 08 | 8 | Printer is Busy at the RS232C interface. |
| 4 | On | 10 | 16 | Not used. Fixed to on. |
| 5 | Off | 00 | 0 | Receipt cover closed. |
|   | On | 20 | 32 | Receipt cover open. |
| 6 | Off | 00 | 0 | Paper Feed Button is not pressed. |
|   | On | 40 | 64 | Paper Feed Button is pressed. |
| 7 | Off | 00 | 0 | Not used. Fixed to off. |

**Second Byte (Error information)**

| Bit | Off/On | Hex | Decimal | Status for ASB |
|---|---|---|---|---|
| 0 | - | - | - | Undefined |
| 1 | - | - | - | Undefined |
| 2 | - | - | - | Undefined |
| 3 | Off | 00 | 0 | No knife error. |
|   | On | 08 | 8 | Knife error occurred. |
| 4 | Off | 00 | 0 | Not used. Fixed to off. |
| 5 | Off | 00 | 0 | No unrecoverable error. |
|   | On | 20 | 32 | Unrecoverable error occurred. |
| 6 | Off | 00 | 0 | No recoverable error occurred |
|   | On | 40 | 64 | Recoverable error occurred: |
|   |   |   |   | Cover open, paper out, tempeature, |
|   |   |   |   | Voltage is out of range. |
| 7 | Off | 00 | 0 | Not used. Fixed to off. |

**Third Byte (Paper Sensor Information)**

| Bit | Off/On | Hex | Decimal | Status for ASB |
|---|---|---|---|---|
| 0 | Off | 00 | 0 | Receipt paper adequate |
|   | On | 01 | 1 | Receipt paper low |
| 1 | Off | 00 | 0 | Receipt paper adequate |
|   | On | 02 | 2 | Receipt paper low |
| 2 | Off | 00 | 0 | Receipt paper present. |
|   | On | 04 | 4 | Receipt paper exhausted. |
| 3 | Off | 00 | 0 | Receipt paper present |
|   | On | 08 | 8 | Receipt paper exhausted |
| 4 | Off | 00 | 0 | Not used. Fixed to off. |
| 5 | Off | 00 | 0 | Undefined. Fixed to off. |
| 6 | Off | 00 | 0 | Undefined. Fixed to off. |
| 7 | Off | 00 | 0 | Not used. Fixed to off. |

**Fourth Byte (Paper Sensor Information)**

| Bit | Off/On | Hex | Decimal | Status for ASB |
|---|---|---|---|---|
| 0 | - | - | - | Undefined |
| 1 | - | - | - | Undefined |
| 2 | - | - | - | Undefined |
| 3 | - | - | - | Undefined |
| 4 | Off | 00 | 0 | Not used. Fixed to off. |
| 5 | - | - | - | Undefined |
| 6 | - | - | - | Undefined |
| 7 | Off | 00 | 0 | Not used. Fixed to off. |

# Bar Code Commands

These following describes the commands for the printing of bar codes  and described in the order of their hexadecimal codes.

**Note:**  7193 firmware can be set for module widths in bar codes ranging from 2 dots to 4 dots per module (DPM) for the narrow modules. The default is 3 DPM. 7167 firmware ranges from 1 dot per module to 5 dots per module (DPM) printed on the receipt. The default is 2 DPM.

### Select Printing Position for HRI Characters

**ASCII**:          GS H $n$

**Hexadecimal**:    1D 48 $n$

**Decimal:**        29 72 $n$

**Value of $n$:**     Printing position

                    0 = Not printed

                    1 = Above the bar code

                    2 = Below the bar code

                    3 = Both above and below the bar code

**Default:**        0 (Not printed)

Prints HRI (Human Readable Interface) characters above or below the bar code.

Example:

• MSComm1.Output = Chr$(&H1D) & Chr$(&H48) & Chr$(n)

## Select Pitch for HRI Characters

**ASCII**:              GS f *n*

**Hexadecimal**:        1D 66 *n*

**Decimal:**            29 102 *n*

**Value of *n*:**       Pitch

                        0 = Standard Pitch at 15.2 CPI on receipt

                        1 = Compressed Pitch at 19 CPI on receipt

**Default:**            0 (Standard Pitch at 15.2 CPI)


Selects standard or compressed font for printing Bar Code characters.

Example:

- MSComm1.Output = Chr$(&H1D) & Chr$(&H66) & Chr$(n)

## Select Bar Code Height

**ASCII**:              GS h *n*

**Hexadecimal**:        1D 68 *n*

**Decimal:**            29 104 *n*

**Value of *n*:**       Number of dots

**Range of *n*:**       1 - 255

**Default:**            162


Sets the bar code height to *n* dots or $n/8$ mm ($n/203$ inch) for receipt.

Example:

- MSComm1.Output = Chr$(&H1D) & Chr$(&H68) & Chr$(n)

## Print Bar Code

| | First Variation | | Second Variation |
|---|---|---|---|
| **ASCII**: | GS k *m d1…dk* NUL | or | GS k *m n d1…dn* |
| **Hexadecimal**: | 1D 6B *m d1…dk* 00 | or | 1D 6B *m n d1…dn* |
| **Decimal:** | 29 107 *m d1…dk* 0 | or | 29 107 *m n d1…dn* |

0 = End of command.

**Values:**

First Variation:    String terminated with NUL Character

$m$ = 0 – 6, 10

$d$ = 32 - 126 (see the table)

$n$ = 1 - 255 (see the table)

Selects the bar code type and prints a bar code for the ASCII characters entered. If the width of the bar code exceeds one line, the barcode is not printed.

There are two variations to this command. The first variation uses a NUL character to terminate the string; the second uses a length byte at the beginning of the string to compensate for the Code 128 bar code, which can accept a NUL character as part of the data. With the second variation the length of byte is specified at the beginning of the string.

Fixed-length codes can be aligned left, center, or right using the Align Positions command (1B 61). Variable-length codes are always center aligned in 7193 Emulation.

The check digit is calculated for UPC and JAN (EAN) codes if it is not sent from the host computer. Six-character zero-suppressed UPC-E tags are generated from full 11 or 12 characters sent from the host computer according to standard UPC-E rules. Start/Stop characters are added for Code 39 if they are not included.

| m | Bar Code | D | n, Length |
|---|----------|---|-----------|
| 0 | UPC-A | 48- 57 (ASCII numerals) | Fixed Length: 11, 12 |
| 1 | UPC-E | 48- 57 | Fixed Length: 11, 12 |
| 2 | JAN13 (EAN13) | 48- 57 | Fixed Length: 12, 13 |
| 3 | JAN8 (EAN8) | 48- 57 | Fixed Length: 7, 8 |
| 4 | Code 39 | 48- 57,<br>65- 90 (ASCII alphabet),<br>32, 36, 37, 43, 45, 46, 47<br>(ASCII special characters)<br>$d1 = dk = 42$ (start/stop<br>code is supplied by<br>printer if necessary) | Variable Length |
| 5 | Interleaved 2 of 5 (ITF) | 48- 57 | Variable Length (Even Number) |
| 6 | CODABAR (NW-7) | 65- 68, start code<br>48- 57, 36, 43, 45, 46, 47, 58 | Variable Length |
| 10 | PDF 417 (7194 Native Mode and 7197 Native Mode) | 1-255 | Variable Length 7194 Native Mode and 7197 Native Mode |

Second Variation: Length of Byte Specified at Beginning of String
*m =*      65 -  73, 75 (see the table)

*d =*      0 -  127 (see the table)

*n =*      1  -  255 (see the table)

The value of *m* selects the bar code system as described in the table. When data is present in the print buffer, the printer processes the data following *m* as normal data.

The variable *d* indicates the character code to be encoded into the specified bar code system. See the table. If character code *d* cannot be encoded, the printer prints the bar code data processed so far, and the following data is treated as normal data.

| M | Bar Code | D | n, Length |
|---|----------|---|-----------|
| 65 | UPC-A | 48- 57 (ASCII numerals) | Fixed Length: 11, 12 |
| 66 | UPC-E | 48- 57 | Fixed Length: 11, 12 |
| 67 | JAN13 (EAN13) | 48- 57 | Fixed Length: 12, 13 |
| 68 | JAN8 (EAN8) | 48- 57 | Fixed Length: 7, 8 |
| 69 | CODE 39 | 48- 57, 65- 90 (ASCII alphabet), 32, 36, 37, 43, 45, 46, 47 (ASCII special characters) $d1 = dn = 42$ (start/stop code is supplied by printer if necessary) | Variable |
| 70 | Interleaved 2 of 5 (ITF) | 48- 57 | Variable (Even Number) |
| 71 | CODABAR (NW-7) | 65- 68, start code 48- 57, 36, 43, 45, 46, 47, 58 | Variable |
| 72 | Code 93 | 0 - 127 | Variable (A748 Native Mode only) |
| 73 | Code 128 | 0-105 $d1$ = 103-105 (must be a Start code) $d2$ = 0-102 (data bytes) (Stop code is provided by the printer) | Variable |
| 75 | PDF417 | 0 – 255 | Variable Length (A748 Native Mode only) |

MSComm1.Output = Chr$(&H1D) & Chr$(&H6B) & Chr$(m) & "123456789012" & Chr$(0)

The above command will print the number above or below the bar code, depending on which parameter for m that specify.

**Exceptions:**

Illegal data cancels this command.

The command is valid only at the beginning of a line.

PDF417 and Code 93 are only available in 7194 Native Mode.

## Select Bar Code Width

**ASCII**:              GS w *n*

**Hexadecimal**:        1D 77 *n*

**Decimal:**            29 119 *n*

**Value of *n*:**        1, 2, 3, 4, 5

**Default:**            3 for receipt

Sets the bar code width to *n* dots.

**Formulas:**

*n* + *1/8* mm (*n* + *1/203* inch) for receipt.

Example:

- MSComm1.Output = Chr$(&H1D) & Chr$(&H77) & Chr$(n)

## Page Mode Commands

Page Mode is one of two modes, which the <u>7194</u> printer uses to operate. Standard Mode is typical of how most printers operate by printing data as it is received and feeding paper as the various paper feed commands are received. Page Mode is different in that it processes or prepares the data as a "page" in memory before it prints it. Think of this as a virtual page. The page can be any area within certain parameters that you define. Once the printer receives the (0x0C) command, it prints the page and returns the printer to Standard Mode.

The Select Page Mode command (1B 4C) puts the printer into Page Mode. Any commands that are received are interpreted as Page Mode commands. Several commands react differently when in Standard Mode and Page Mode. The descriptions of these individual commands in this chapter indicate the differences in how they operate in the two modes.

**Limitations**

Page mode is only implemented on the receipt station in <u>7194 Native</u> Mode only.

### Print and Return to Standard Mode
**ASCII:**          FF

**Hexadecimal:**    0C

**Decimal:**        12

The processed data is printed and the printer returns to Standard Mode. The developed data is deleted after being printed.

Example:

- MSComm1.Output = Chr$(&H0C)

Exceptions:

This command is enabled only in Page Mode.

## Cancel Print Data in Page Mode

**ASCII:**            CAN

**Hexadecimal:**     18

**Decimal:**         24

Deletes all the data to be printed in the "page" area. Any data from the previously selected "page" area that is also part of the current data to be printed is deleted.

This command has the same code as the Open Form command, which is performed when the printer is not in Page Mode.

Example:

• MSComm1.Output = Chr$(&H18)

Exceptions:

This command is only used in Page Mode.

## Print Data in Page Mode

**ASCII:**            ESC FF

**Hexadecimal:**     1B 0C

**Decimal:**         27 12

Collectively prints all buffered data in the printing area.

After printing, the printer does not clear the buffered data and sets values for Select Print Direction in Page Mode (1B 54 n) and Set Print Area in Page Mode (1B 57…), and sets the position for buffering character data.

Example:

• MSComm1.Output = Chr$(&H1B) & Chr$(&H0C)

Exceptions:

This command enabled only in Page Mode.

## Select Page Mode
**ASCII:**              ESC L

**Hexadecimal:**    1B 4C

**Decimal:**        27 76

Switches from Standard Mode to Page Mode. After printing has been completed either by the Print and Return to Standard Mode (FF) command or Select Standard Mode (1B 53) the printer returns to Standard Mode. The developed data is deleted after being printed.

This command sets the position where data is buffered to the position specified by Select Print Direction in Page Mode (1B 54) within the printing area defined by Set Print Area in Page Mode (1B 57).

This command switches the settings for the following commands (which values can be set independently in Standard Mode and Page Mode) to those for Page Mode.

1. Set Right-Side Character Spacing (1B 20)

2. Select 1/6-Inch Line Spacing (1B 32)

3. Set Line Spacing (1B 33)

It is possible only to set values for the following commands in Page Mode. These commands are not executed.

4. Select or Cancel 90 Degree Clockwise Rotation (1B 56)

5. Select Justification (1B 61)

6. Select or Cancel Upside Down Printing (1B 7B).

7. Set Left Margin (1D 4C)

8. Set Print Area Width (1D 57)

Example:

- MSComm1.Output = Chr$(&H1B) & Chr$(&H4C)

Exceptions:

The command is enabled only when input at the beginning of a line.
The command has no effect if Page Mode has previously been selected.
In 7193 Emulation Mode, (1B 4C…) is used for double density graphics.

## Select Standard Mode

**ASCII:**            ESC S

**Hexadecimal:**    1B 53

**Decimal:**          27 83

Switches from Page Mode to Standard Mode. In switching from Page Mode to Standard Mode, data buffered in Page Mode is cleared, the printing area set by Set Print Area in Page Mode (1B 57) is initialized and the print position is set to the beginning of the line.

This command switches the settings for the following commands (the values for these commands can be set independently in Standard Mode and Page Mode) to those for Standard Mode:

1.  Set Right-Side Character Spacing (1B 20)

2.  Select 1/6 Inch Line Spacing (1B 32)

3.  Set Line Spacing (1B 33)

Standard Mode is automatically selected when power is turned on, the printer is reset, or the Initialize Printer command (1B 40) is used.

Example:

*   MSComm1.Output = Chr$(&H1B) & Chr$(&H53)

Exceptions:

This command is effective only in Page Mode.

## Select Print Direction in Page Mode

**ASCII**: ESC T *n*

**Hexadecimal**: 1B 54 *n*

**Decimal:** 27 84 *n*

**Value of *n*:** Start position

0    Upper left corner proceeding across page to the right (A)

1    Lower left corner proceeding up the page (B)

2    Lower right corner proceeding across page to the left (upside down) (C)

3    Upper right corner proceeding down page (D)

A, B, C and D note the direction of of print. See illustration.

Selects the printing direction and start position in Page Mode. See the illustration.

The command can be sent multiple times so that several different print areas, aligned in different print directions, can be developed in the printer's page buffer before being printed by the Print and Return to Standard mode command (0C).
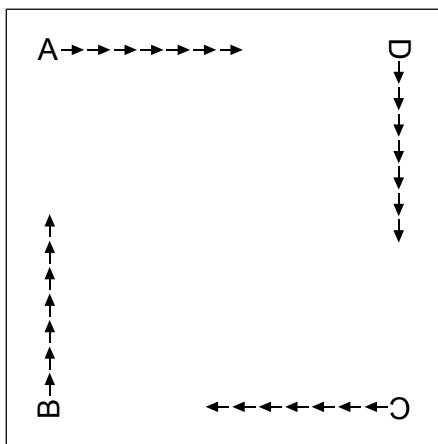


**Default:**     0 (Upper left corner proceeding across page to the right)

Example:

• MSComm1.Output = Chr$(&H1B) & Chr$(&H54) & Chr$(n)

Exceptions:

This command is valid only in Page Mode.

This command is ignored if the value of *n* is out of the specified range.

## Set Printing Area in Page Mode

**ASCII:**        ESC W *n1, n2 ...n8*.]

**Hexadecimal:**    1B 57 *n1, n2 ...n8]*

**Decimal:**        27 87 *n1,n2 ...n8]*

**Range:**        0 - 255

**Default:**        *n1-4 =* 0

                 *n5 =* 64

                 *n6 =* 2

                 *n7 =* 64

                 *n8 =* 2

Sets the position and size of the printing area in Page Mode.

The command can be sent multiple times so that several different print areas, aligned in different print directions, can be developed in the printer's page buffer before being printed by the Print and Return to Standard mode command (0C).

Defaults equal an origin of 0,0 and a size of 576x576. This command is allowed in any mode.

**Formulas:**

The starting position of the print area is the upper left of the area to be printed (x0, y0). The length of the area to be printed in the y direction is set to dy inches. The length of the area to be printed in the x direction is set to dx inches. Use the equations to determine the Value of x0, y0, dx, and dy.

See the illustration for a graphic representation of the printing area. For more information about the fundamental calculation pitch, see the Set Fundamental Calculation Pitch command (1D 50).

1.  x0 = [($n1$ + $n2$ x 256) x (horizontal direction of the fundamental calculation pitch)]

2.  y0 = [($n3$ + $n4$ x 256) x (vertical direction of the fundamental calculation pitch)]

3.  dx = [($n5$ + $n6$ x 256) x (horizontal direction of the fundamental calculation pitch)]

4.  dy = [($n7$ + $n8$ x 256) x (vertical direction of the fundamental calculation pitch)]

Keep the following notes in mind for this command.

5.  The fundamental calculation pitch depends on the vertical or horizontal direction.

6.  The maximum printable area in the x direction is 576/203 inches.

7.  The maximum printable area in the y direction is 2000/203 inches.

First the printer must be set to page mode, then the following command should be sent. Example:

- MSComm1.Output = Chr$(&H1B) & Chr$(&H57) & Chr$(&H40) & Chr$(&H0) & Chr$(&H40) & Chr$(&H0) & Chr$(&H40) & Chr$(&H1) & Chr$(&H40) & Chr$(&H1)

Exception:

This command is effective only in Page Mode.

## Set Absolute Vertical Print Position in Page Mode

**ASCII**:              GS $ *nL nH*

**Hexadecimal**:    1D 24 *nL nH*

**Decimal:**         29 36 *nL nH*

**Formulas:**

[(*nL* + *nH* X 256) x (vertical or horizontal motion unit)] inches.

Sets the absolute vertical print starting position for buffer character data in Page Mode.

The vertical or horizontal motion unit for the paper roll is used and the horizontal starting buffer position does not move.

The reference starting position is set by Select Print Direction in Page Mode (1B 54). This sets the absolute position in the vertical direction when the starting position is set to the upper left or lower right; and sets the absolute position in the horizontal direction when the starting position is set to the upper right or lower left. The horizontal and vertical motion unit are specified by the Set Horizontal and Vertical Minimum Motion Units (1D 50) command.

The Set Horizontal and Vertical Minimum Motion Units (1D 50) command can be used to change the horizontal and vertical motion unit. However, the value cannot be less than the minimum horizontal movement amount, and it must be in even units of the minimum horizontal movement amount.

Example:

- MSComm1.Output = Chr$(&H1D) & Chr$(&H24) & Chr$(nL) & Chr$(nH)

Exceptions:

This command is effective only in Page Mode.

If the [(*nL* + *nH* x 256) x (vertical or horizontal motion unit)] exceeds the specified printing area, this command is ignored.

## Set Relative Vertical Print Position in Page Mode

**ASCII**:             GS \ *nL nH*

**Hexadecimal**:     1D 5C *nL nH*

**Decimal:**         29 92 *nL nH*

Sets the relative vertical print starting position from the current position. This command can also change the horizontal and vertical motion unit. The unit of horizontal and vertical motion is specified by this command.

This command functions as follows, depending on the print starting position set by Select Print Direction in Page Mode (1B 54):

- When the starting position is set to the upper left or lower left of the printing area, the vertical motion unit ($y$) is used.

- When the starting position is set to the upper right or lower left of the printing area, the horizontal motion unit ($x$) is used.

Value:

The value for the horizontal and vertical movement cannot be less than the minimum horizontal movement amount, and must be in even units of the minimum horizontal movement amount.

Formulas:

The distance from the current position is set to [($nL$ + $nH$ x 256) x vertical or horizontal motion unit] inches. The amount of movement is calculated only for the receipt.

When pitch $n$ is specified to the movement downward:
```
nL + nH x 256 = n
```

When pitch $n$ is specified to the movement upward (the negative direction), use the complement of 65536.

When pitch $n$ is specified to the movement upward:
```
nL + nH x 256 – 65536 – N
```

Exceptions:

This command is used only in Page Mode, otherwise it is ignored.

Any setting that exceeds the specified printing area is ignored.

- Example:
- MSComm1.Output = Chr$(&H1D) & Chr$(&H5C) & Chr$(nL) & Chr$(nH)

# Macro Commands

These commands are used to select and perform a user-defined sequence of printer operations.

## Start or End Macro Definition

**ASCII:**            GS :

**Hexadecimal:**      1D 3A

**Decimal:**          29 58

Starts or ends macro definition. Macro definition begins when this command is received during normal operation and ends when this command is received during macro definition. The macro definition is cleared, during definition of the macro, when the Execute Macro (1D 5E) command is received.

Normal printing occurs while the macro is defined. When the power is turned on the macro is not defined.

The defined contents of the macro are not cleared by the Initialize Printer      (1B 40), thus, the Initialize Printer (1B 40) command may be used as part of the macro definition.

If the printer receives a second Select or Cancel Macro Definition (1D 3A) command immediately after previously receiving a Select or Cancel Macro Definition (1D 3A) the printer remains in the macro undefined state.

**Formulas:**

The contents of the macro can be defined up to 2048 bytes.

Example:

• MSComm1.Output = Chr$(&H1D) & Chr$(&H3A)

Exceptions:

If the macro definition exceeds 2048 bytes, excess data is not stored.

This command is available in 7194 Native Mode only.

## Execute Macro

**ASCII**:  GS ^ *r t m*

**Hexadecimal**:  1D 5E *r t m*

**Decimal:**  29 94 *r t m*

**Value of *r*:**  The number of times to execute the macro.

**Value of *t*:**  The waiting time for executing the macro.

**Value of *m*:**  Macro executing mode

0 (Bit0): The Macro executes *r* times continuously with waiting time specified by *t*.

1 (Bit0): The printer waits for feed button to be pressed after waiting for the period specified by *t*. If the button is pressed, the printer executes the macro once. The printer repeats the operation *r* times.

Executes a macro. After waiting for a specified period the LED indicators blink and the printer waits for the Paper Feed Button to be pressed. After the button is pressed, the printer executes the macro once. The printer repeats this operation the number of specified times.

When the macro is executed by pressing the Paper Feed Button (*m* = 1), paper cannot be fed by using the Paper Feed Button.

**Formulas:**

The waiting time is *t* x 100 msec for every macro execution.

*m* specifies macro executing mode when the LSB (Least significant bit) *m* = 0

The macro executes *r* times continuously at the interval specified by *t* when the LSB (Least significant bit) of *m* = 1.

Example:

- MSComm1.Output = Chr$(&H1D) & Chr$(&H5E) & Chr$(r) & Chr$(t) & Chr$(m)

Exceptions:

If this command is received while a macro is being defined, the macro definition is aborted and the definition is cleared.

If the macro is not defined or if *r* is 0, nothing is executed.

This command is available in <u>7194 Native</u> Mode only.

## User Data Storage Commands

### Write to User Data Storage

**ASCII:** ESC ' m a0 a1 a2 d1 ... dm

**Hexadecimal:** 1B 27 m a0 a1 a2 d1 ... dm

**Decimal:** 27 39 m a0 a1 a2 d1 ... dm

**Value of m:** 0 – 255

Writes m bytes of data to the User Data Storage Flash Page at the address specified. The printer waits for m bytes of data following the 3-byte address, addr.

If any of the memory locations addressed by this command are not currently erased, the command is not executed.

Example:

- MSComm1.Output = Chr$(&H1B) & Chr$(&H27) & Chr$(&H5) & Chr$(&H0) & Chr$(&H0) & Chr$(&H0) & "Hello"

The above command writes the word 'Hello' to the User Data Storage Flash Page.

### Read from User Data Storage

**ASCII:** ESC 4 *m a0 a1 a2*

**Hexadecimal:** 1B 34 *m a0 a1 a2*

**Decimal:** 27 52 *m a0 a1 a2*

**Value of *m*:** 0 – 255

Reads *m* bytes of data from the User Data Storage Flash Page at the address specified.

Example:

- MSComm1.Output = Chr$(&H1B) & Chr$(&H34) & Chr$(&H5) & Chr$(&H0) & Chr$(&H0) & Chr$(&H0)

## Read from Non-Volatile Memory

**ASCII**:                     ESC j *k*

**Hexadecimal          1B 6A *k*
:**

**Decimal:**              27 106 *k*

**Range of *k*:**        20 – 63 (decimal)

Reads a two-byte word from location *k* in the history EEROM. The printer returns the word at the next available opportunity.

Example:

• MSComm1.Output = Chr$(&H1B) & Chr$(&H6A) & Chr$(k)

## Write to Non-Volatile Memory (NVRAM)

**ASCII**:                     ESC s *n*1 *n*2 *k*

**Hexadecimal**:         1B 73 *n*1 *n*2 *k*

**Decimal:**              27 115 *n*1 *n*2 *k*

**Value of *n1* :**       1st Byte

**Value of *n2* :**       2nd Byte

**Range of *k* :**        20 - 63 (decimal)

Writes the two-byte word, *n*1 *n*2, to location *k* in history EEROM.

Example:

• MSComm1.Output = Chr$(&H1B) & Chr$(&H73) & Chr$(n1) & Chr$(&Hn2k)

## Select Memory Type (SRAM/Flash) Where to Save Logos or User-Defined Fonts

**ASCII**:  GS " *n*

**Hexadecimal**:  1D 22 *n*

**Decimal:**  29 34 *n*

**Value of *n*:**  48 - 51

Specifies whether to load the logos or user-defined characters to Flash Memory or to RAM (volatile memory). The selection remains in effect until it is changed via this command or until the power cycles.

*n* = 48 (ASCII *n* = 0)

Loads active logo to RAM only. This is used to print a special logo but not have it take up Flash Memory. A logo defined following this command is not preserved over a power cycle.

*n* = 49 (ASCII *n* = 1)

Loads active logo to Flash Memory. This is the default condition for logo Flash storage. A logo defined following this command is stored in Flash Memory.

*n* = 50 (ASCII *n* = 2)

Loads user-defined characters to RAM only. This is the default condition for user-defined character storage. Any user-defined characters defined following this command are not preserved over a power cycle.

*n* = 51 (ASCII *n* = 3)Loads user-defined characters to Flash Memory. An application must use this command to store user-defined characters in Flash Memory. Any user-defined characters defined following this command are stored in Flash Memory. A user-defined character cannot be redefined in Flash Memory. The Flash Memory page must be erased by an application before redefining user-defined characters. For more information, see the Erase User Flash Sector (1D 40 *n*) command.

Example:

- MSComm1.Output = Chr$(&H1D) & Chr$(&H22) & Chr$(n)

## Flash Allocation

**ASCII**:                    GS " U *n1 n*

**Hexadecimal**:        1D 22 55 *n1 n2*

**Decimal:**             29 34 85 *n1 n2*

**Default Value of** *n1***:**         1 (see below)

**Default Value of** *n2***:**         1 (see below)

n1 is the number of 64k sectors used for logos and user-defined characters.
n2 is the number of 64k sectors used for user data storage.

This command sets the allocation of Flash sectors between user data storage and logos/user-defined characters. This allocation is saved in the EEPROM of the printer and is therefore saved across power cycles.

n1 + n2 <= 6 (3M)

 The 7194 has been configured at the factory with 512K, 1M or 2M of Flash memory. If n1 + n2 is greater than the maximum number of sectors available,  the command is ignored. Reissuing this command with different parameters will erase all sectors.

Example:

- MSComm1.Output = Chr$(&H1D) & Chr$(&H22) & Chr$(&H55) & Chr$(&Hn1) & Chr$(Hn2)

Exception:

This is command is available only in 7194 Native Mode

## Erase User Flash Sector

**ASCII**:         GS @ *n*

**Hexadecimal**:    1D 40 *n*

**Decimal:**       29 64 *n*

**Value of *n*:**     49 - 50

Erases a page of Flash Memory and sends a carriage return when the operation is complete.

*n* = 49 (ASCII *n* = 1)

This command erases all sectors available for user-defined characters and multiple logos. The page should be erased in two situations: when the logo definition area is full and an application is attempting to define new logos, and when an application wants to replace one user-defined character set with another. In both cases, all logos and character set definitions are erased and must be redefined.

*n* = 50 (ASCII *n* = 2)

This command erases all sectors available for user data storage.

**Important:** While erasing Flash Memory, the printer disables all interrupts, including communications. To provide feedback to the application, the printer responds to the application when the erase is complete. After sending the Erase User Flash Sector (1D 40 *n*) command, an application should wait for the response from the printer before sending data. Otherwise, data will be lost. If an application is unable to receive data, it should wait a minimum of five seconds after sending the Erase User Flash Sector (1D 40 *n*) command before sending data.

Example:

- MSComm1.Output = Chr$(&H1D) & Chr$(&H40) & Chr$(n)

## Printer Setting Change

**ASCII**:              US DC1 [*m n*], [*m n*], … [*m n*] 0FFH

**Hexadecimal**:     1F 11 [*m n*], [*m n*], … [*m n*] 0FFH

**Decimal:**          31 17 [*m n*], [*m n*], … [*m n*] 0FFH

**Value of *m, n*:**

| *m* (Hex) | Function | *n* (Hex) | Function |
|---|---|---|---|
| 10 | Interface type | 00 | USB/RS232C |
|  |  | 01 | RS232C |
|  |  | 02 | USB |
| 11 | Baud rate | 00 | 115200 bps |
|  |  | 01 | 57600 bps |
|  |  | 02 | 38400 bps |
|  |  | 03 | 19200 bps |
|  |  | 04 | 9600 bps |
|  |  | 05 | 4800 bps |
|  |  | 06 | 2400 bps |
|  |  | 07 | 1200 bps |
| 12 | Number of data bit | 00 | 8 data bits |
|  |  | 01 | 7data bits |
| 13 | Number of stop bit | 00 | 1 stop bits |
|  |  | 01 | 2 stop bits |
| 14 | Parity | 00 | No parity |
|  |  | 01 | Even parity |
|  |  |  | Odd parity |
| 15 | Flow control | 00 | Software (XON/XOFF) |
|  |  | 01 | Hardware (DTR/DSR) |
| 16 | Data reception errors option | 00 | Ignore errors |
|  |  | 01 | Print "?" |
| 17 | One Line Buffer | 00 | 4 K Buffer |
|  |  | 01 | Single Line Buffer  (64 bytes) |
| 19 | Printer ID Mode | 00 | 7197 Native ID |
|  |  | 01 | Emulated Printer ID |
|  |  | 02 | 7197 Native ID |
| 20 | Emulation | 00 | 7194 Mode |
|  |  | 01 | 7193 mode |
|  |  | 02 | 7197 Native Mode |

| *m* (Hex) | Function | *n* (Hex) | Function |
|---|---|---|---|
| 21 | Default lines per inch | 00 | 8.13 lines per inch |
| | | 01 | 7.52 lines per inch |
| | | 02 | 6 lines per inch |
| 22 | Carriage return usage | 00 | Ignore CR |
| | | 01 | Use CR as Print cmd. |
| 23 | Asian mode | 00 | Asian mode on |
| | | 01 | Asian mode off |
| 25 | Receipt synchronization | 00 | Enabled |
| | | 01 | Disabled |
| 30 | Print Density | 00 | 100% |
| | | 01 | 110% |
| | | 02 | 120% |
| 31 | Paper Low sensor option | 00 | Paper low sensor enable |
| | | 01 | Paper low sensor disable |
| 32 | Paper width | 00 | 80 mm |
| | | 01 | 58 mm |
| 33 | Knife option | 00 | Enable knife |
| | | 01 | Disable knife |
| 36 | Max Power | 00 | 55 W |
| | | 01 | 75 W |
| 37 | Color Paper Option | 00 | One color paper |
| | | 01 | Two color paper |
| 40 | Default Code page | 00 | 437 |
| | | 01 | 850 |
| | | 02 | 852 |
| | | 03 | 858 |
| | | 04 | 860 |
| | | 05 | 862 |
| | | 06 | 863 |
| | | 07 | 864 |
| | | 08 | 865 |
| | | 09 | 866 |
| | | 0A | 874 |
| | | 0B | 1252 |
| | | 0C | Katakana |
| | | 0D | 932 (or 936, 949, 950) |
| 50 | EEPROM default setting | 00 | EEPROM default setting |

Set the printer configuration specified by m and n. The printer is reset after receiving this command to activate the configuration setting. If m or n is out of range, this command is ignored. But the printer waits the data until terminator code "0FFH".

Example:

- MSComm1.Output = Chr$(&H1F) & Chr$(&H06)

# Asian Character Commands

### Select print modes for Kanji characters

**ASCII**:           FS ! *n*

**Hexadecimal**:    1C 21 *n*

**Decimal:**        28 33 *n*

**Value of *n*:**    The character attribute for Asian character

| Bit | Off/On | Hex | Decimal | Function |
|-----|--------|-----|---------|----------|
| 0 | - | - | - | Select font |
| 1 | Off | 00 | 0 | Undefined |
| 2 | Off | 00 | 0 | Double width mode is not selected |
|   | On | 01 | 1 | Double width mode is selected |
| 3 | Off | 00 | 0 | Double height mode is not selected |
|   | On | 01 | 1 | Double height mode is selected |
| 4 | - | - | - | Undefined |
| 5 | - | - | - | Undefined |
| 6 | - | - | - | Undefined |
| 7 | Off | 00 | 0 | Underline mode is not selected |
|   | On | 01 | 1 | Underline mode is selected |

**Default of *n*:**    0

Selects character attribute for Asian character.

The underline mode can be turned on or off by using FS – or ESC – also.

The thickness of underline is defined by FS – or ESC -, it does not relate to character size.

Example:

- MSComm1.Output = Chr$(&H1C) & Chr$(&H21) & Chr$(n)

- 

## FS – Turn underline mode ON/OFF for Kanji

**ASCII**:          FS - *n*

**Hexadecimal**:    1C 2D *n*

**Decimal:**        28 45 *n*

**Value of *n*:**   0 = Cancel

                    1 = 1 dot height underline

                    2 = 2 dot height underline

**Default *n*:**    0 (Cancel)

Turn underline mode on or off for Asian character.

All characters could be underlined, including character right side spacing.

Underline can be selected by FS ! and ESC – also, the last received command is effective.

Example:

- MSComm1.Output = Chr$(&H1C) & Chr$(&H2D) & Chr$(n)

## Define user-defined Kanji characters

**ASCII**:          FS 2 *c1 c2 d1 … dn*

**Hexadecimal**:    1C 32 *c1 c2 d1 … dn*

**Decimal:**        28 50 *c1 c2 d1 … dn*

**Value of *c1*:**  Specified the beginning Asian character code

**Value of *c2*:**  Specified the end Asian character code

**Value of *d*:**   Image data

| **Range of *c1,c2*:** | Japanese (CP932) | $F0 \le c1 \le F9$, $40 \le c2 \le 7E$ and $80 \le c2 \le FC$ |
|---|---|---|
| | Simplified Chinese (CP936) | $A1 \le c1 \le A7$, $40 \le c2 \le 7E$ and $80 \le c2 \le A0$, $AA \le c1 \le AF$, $A1 \le c2 \le FE$, $F8 \le c1 \le FE$, $A1 \le c2$ |

≤  FE

| | |
|---|---|
| Korean (CP949) | c1 = C9 and c1 = FE, A1 ≤ c2 ≤ FE |
| Traditional Chinese (CP950) | 81 ≤ c1 ≤ A0 and FA ≤ c1 ≤ FE, 40 ≤ c2 ≤ 7E and 80 ≤ c2 ≤ FE C7 ≤ c1 ≤ C8, A1 ≤ c2 ≤ FE |

Defines and enters downloaded characters into RAM. The user-defined character will be cleared by ESC @ or power off of printer. Each character requires 72 bytes for character definition.

The maximum number of user-defined character is 100.

Example:

- MSComm1.Output = Chr$(&H1C) & Chr$(&H32) & Chr$(&HF0) & Chr$(&H40) & Chr$(d1) & Chr$(dn)

## Set Kanji character spacing

**ASCII**:         FS S *n1 n2*

**Hexadecimal**:   1C 53 *n1 n2*

**Decimal:**       28 83 *n1 n2*

**Value of *n1*:**   Ignored (0)

**Value of *n2*:**   Character right side spacing dots (1/203 inch)

**Default of *n2*:**   1 for 1 byte character, 2 for 2 bytes character

Sets the character right side spacing for characters in Asian character.

The underline is valid on the space set by this command. ESC SP command is not valid for Asian character code pages. Therefore, this command is used to set the character right side spacing for characters in Asian code page.

Example:

- MSComm1.Output = Chr$(&H1C) & Chr$(&H53) & Chr$(0) & Chr$(100)

## FS W (Set quadruple mode ON/OFF for Kanji)

**ASCII**:         FS W *n*

**Hexadecimal**:   1C 57 *n*

**Decimal:**       28 87 *n*

**Value of *n*:**   The quadruple mode for Asian characters.

                   0 (Bit 0) = Quadruple mode off

                   1 (Bit 0) = Quadruple mode on

**Default of *n*:** 0 (Quadruple mode off)

Selects or cancels the quadruple mode for Asian characters.

FS ! and GS ! also have control over character size. This, latest received command is effective.

Example:

- MSComm1.Output = Chr$(&H1C) & Chr$(&H57) & Chr$(n)

# Flash Download Commands

These commands are used to load firmware into the printer.

The commands are listed in numerical order according to their hexadecimal codes. Each command is described and the hexadecimal, decimal, and ASCII codes are listed.

There are three ways to enter the Download Mode.

1. Powering the printer up with DIP Switch 2 up.

2. While the printer is running normally, use the command Switch to Flash Download Mode, to leave normal operation and enter the Download Mode.

3. If the Flash if found corrupted during Level 0 diagnostics the Download Mode is automatically entered after the printer has reset.

The printer never goes directly from the Download Mode to normal printer operation. To return to normal printer operation either the operator must turn the power off and then on to reboot or the application must send a command to cancel Download Mode and reboot.

## Switch to Flash Download Mode

**ASCII:** ESC [ }

**Hexadecimal:** 1B 5B 7D

**Decimal:** 27 91 125

Puts the printer in Flash Download Mode in preparation to receive commands controlling the downloading of objects into Flash Memory. When this command is received, the printer leaves normal operation and can no longer print transactions until the Reboot the Printer command (1D FF) is received or the printer is rebooted.

This command does not affect the current communication parameters. Once the printer is in Flash Download Mode, this command is no longer available.

Example:

- MSComm1.Output = Chr$(&H1B) & Chr$(&H5B) & Chr$(&H7D)

## Request Printer ID

**ASCII:** GS NUL

**Hexadecimal:** 1D 00

**Decimal:** 29 0

Returns ACK (06 hex) + 12 bytes ASCII string describing the Flash Memory Boot Sector Firmware part number. Ex : 189-1234567A

Example:

- MSComm1.Output = Chr$(&H1D) & Chr$(&H00)

### Return Segment Number Status of Flash Memory

**ASCII:**             GS SOH

**Hexadecimal:**       1D 01

**Decimal:**           29 1

Returns the size of the Flash used. There may be 8, 16, or 32 sectors (64K each) in Flash Memory. This command assures that the firmware to be downloaded is the appropriate size for Flash Memory. The value returned is the maximum sector number that can be accepted by the Select Sector to Download (1D 02 *n*) command.

Example:

• MSComm1.Output = Chr$(&H1D) & Chr$(&H01)

Exceptions:

Available only in Download Mode.

### Select Flash Memory Sector to Download

**ASCII**:             GS STX *n*

**Hexadecimal**:       1D 02 *n*

**Decimal:**           29 2 *n*

**Value of *n*:**      The Flash sector to which the next download
                       operation applies

**Range of *n***:      0 – 7 (512K)

                       0 – 15 (1 mB)

                       0 – 31 (2 mB)

Selects the Flash sector (nn) for which the next download operation applies. The values of the possible sector are restricted, depending upon the Flash part type. The printer transmits an ACK if the sector number is acceptable or an NAK if the sector number is not acceptable. Sector numbers start at 0.

Example:

• MSComm1.Output = Chr$(&H1D) & Chr$(&H02) & Chr$(n)

Exceptions:

Available only in Download Mode.

## Get Firmware CRC

**ASCII:**                GS ACK

**Hexadecimal:**      1D 06

**Decimal:**            29 6

Causes the printer to calculate the CRC for the currently selected sector and transmits the result. This is performed normally after downloading a sector to verify that the downloaded firmware is correct. The printer also calculates the CRC for each sector during power up and halts the program if any sector is erroneous.

The printer transmits ACK if the calculated CRC is correct for the selected sector; NAK if the CRC is incorrect or if no sector is selected.

Example:

- MSComm1.Output = Chr$(&H1D) & Chr$(&H06)

## Return Microprocessor CRC

**ASCII:**                GS BEL

**Hexadecimal:**      1D 07

**Decimal:**            29 7

Returns the CRC calculated over the boot sector code space.

**Formulas:** ACK <low byte> <high byte>

Example:

- MSComm1.Output = Chr$(&H1D) & Chr$(&H07)

### Erase the Flash Memory

**ASCII:**         GS SO

**Hexadecimal:**    1D 0E

**Decimal:**        29 14

Causes the entire Flash Memory (except the boot) to be erased.
The printer returns ACK if the command is successful; NAK if it is unsuccessful.

Example:

• MSComm1.Output = Chr$(&H1D) & Chr$(&H0E)

Exceptions:

Available only in Download Mode.

### Return Main Program Flash CRC

**ASCII:**         GS SI

**Hexadecimal:**    1D 0F

**Decimal:**        29 15

Returns the CRC calculated over the Flash firmware code space. The format of the
response is ACK <low byte> <high byte>.

Example:

• MSComm1.Output = Chr$(&H1D) & Chr$(&H0F)

### Erase Selected Flash Sector

**ASCII**: GS DLE *n*

**Hexadecimal**: 1D 10 *n*

**Decimal:** 29 16 *n*

**Value and Range of *n*:** 0 – 7 =  512K bytes Flash

0 – 15 = 1M bytes Flash

0 – 31 = 2M bytes Flash

Erases the previously selected sector. The printer transmits ACK when the sector has been erased. If the previous sector is not successfully erased, or if no sector was selected, the printer transmits NAK.

Example:

- MSComm1.Output = Chr$(&H1D) & Chr$(&H10) & Chr$(n)

Exceptions:

Available only in Download Mode.

## Download to Active Flash Sector

| | |
|---|---|
| **ASCII**: | GS DC1 *al ah cl ch d1…dn* |
| **Hexadecimal**: | 1D 11 *al ah cl ch d1…dn* |
| **Decimal:** | 29 17 *al ah cl ch d1…dn* |
| **Value of** *al:* | low byte of the address |
| **Value of** *ah:* | high byte of the address |
| **Value of** *cl:* | low byte of the count |
| **Value of** *ch:* | high byte of the count |
| **Value of** *d:* | data bytes, from 1 to n |

Contains a start address (ah * 256 + al) and count (ch * 256 + cl) of binary bytes to load into the selected sector, followed by that many bytes. The start address is relative to the start of the sector. Addresses run from 0 to 64K.

The printer may return one of several responses. ACK means that the data was written correctly and the host should transmit the next block. NAK means that, for some reason, the data was not written correctly. This could mean that communications failed or that the write to Flash failed. The alternatives seem to be to retry the block or halt loading and assume a hardware failure.

| Value of *n* (for number of data bytes) | Range of Address (*al ah*) | Range of Count (*cl ch*) |
|---|---|---|
| ((*ch* * 256) + *cl*) | 2000-FFFF (hexadecimal) | 0001-0400 (hexadecimal) |

**Range:**  Addresses run from 0 to 64K.

**Related Information:**

Available only in Download Mode.

## Reboot the Printer

**ASCII**:              GS (SPACE)

**Hexadecimal**:     1D FF

**Decimal:**          29 255

Ends the load process and reboots the printer. Before executing this command, the printer should have firmware loaded and external switches set to the runtime settings. Application software for downloading should prompt the user to set the external switches and confirm before sending this command. If the downloading was started from a diagnostic, the reboot will cause the printer to reenter download state unless the external switches are changed.

Example:

• MSComm1.Output = Chr$(&H1D) & Chr$(&HFF)

# Chapter 7: Reflashing the Printer Firmware

## Flash Utility Information

The following instructions provide information on how to use the Flash Utilities provided for the 7167, 7197, and 7401-K590 printers.  These instructions cover the utilities provided for Windows 9x/NT/2000 GUI, Windows Command Line, and DOS.

The following are the files which comprise the utilities:

**TseFlash.exe** – Windows GUI version of the Flash Utility
**TseFlash.com** – Windows Command Line Flash Utility
**Aflash.exe** – DOS Command Line Flash Utility
**help.bat** – Batch file that causes TseFlash.com to display command line options.
**msvcrt.dll** – Windows system DLL used by TseFlash utility and distributed with it.
**mfc42.dll** – Microsoft Foundation  Class Library DLL used by TseFlash utility and distributed with it.

## File Configurations

There are several different kinds of firmware loads that can be sent to the printer:

1. Boot Firmware
2. Main Firmware
3. Single Byte Font
4. Two Byte Receipt Font
5. Two Byte Slip Font

The **Single Byte Font** file has a file extension of **.sfn**.  It is the font used for OEM Codepages such as 437, 850, 858, etc. which require only a single byte of data to define the character to be printed.  The **Two Byte Font** files ( Separately Defined for Slip & Receipt ) have a file extension .dfn.  These are used to define Code Pages 932 – Japanese, 936 – Simplified Chinese, 949 – Korean, 950 – Traditional Chinese.

If is very rare for the Single Byte Font to have to be updated.  Since there is only enough memory in the printer for one of the Two Byte Fonts to be loaded at any time, the Two Byte Font will typically need to be loaded prior to installation in the appropriate country.

The Font files both Single and Two byte should be loaded into the printer after the Boot and Main firmware have been loaded.

## Printer Languages Cross Reference

| | FILENAME | PRINT STATION | |
|---|---|---|---|
| Non Asian | A0106.sfn | 7167 | Receipt & Slip |
| | A0106.sfn | 7197 | Receipt |
| | ANK.sfn | K590 | |
| Japanese | A0106.sfn | 7167 | Receipt & Slip |
| | J0104.dfn | | Receipt |
| | J0106_s.dfn | | Slip |
| | SamJ0100.dfn | 7197 | Receipt |
| | ANK.sfn | K590 | |
| | J0103.dfn | | |
| Korean | A0106.sfn | 7167 | Receipt & Slip |
| | K0103.dfn | | Receipt |
| | K0101_s.dfn | | Slip |
| | A0106.sfn | 7197 | Receipt |
| | K0103.dfn | | |
| | ANK.sfn | K590 | |
| | K0103.dfn | | |
| Simple Chinese | A0106.sfn | 7167 | Receipt & Slip |
| | S0102.dfn | | Receipt |
| | S0101_s.dfn | | Slip |
| | A0106.sfn | 7197 | Receipt |
| | S0102.dfn | | Receipt |
| | ANK.sfn | K590 | |
| | S0102.dfn | | |
| Traditional Chinese | A0106.sfn | 7167 | Receipt & Slip |
| | T0102.dfn | | Receipt |
| | TC0101_s.dfn | | Slip |
| | A0106.sfn | 7197 | Receipt |
| | T0102.dfn | | Receipt |
| | ANK.sfn | K590 | |
| | T0102.dfn | | |

Note:  A0106.sfn contains receipt and slip ANK fonts.

The noted font files are include on LPIN A370-0050-0000 or are available from the NCR web site under Retail Solution Specific Printer Firmware.

## DOS Flash Utility

The DOS flash utility is intended for use from a DOS Boot only.  It is mainly provided for remote flash capabilities by providing a way to create a DOS Boot Image that will automatically load and flash update the printer firmware without user intervention.

If you type AFLASH.EXE without any parameters you will get the following screen that describes the parameter usage:

```
Flash Memory Writer V2.02
 Usage: AFLASH.EXE  <model> <type> <port> <baud rate> <filename>
 Options:
   <model>     : K590, 7167, 7197
   <type>
     -m        : Download main firmware program
     -i        : Download ipl firmware program
     -a        : Download ANK single byte font
     -s        : Download ASIAN two byte font
     -rs       : Download receipt ASIAN two byte
                   font
     -ss       : Download slip ASIAN two byte font
   <port>      : COM1, COM2
   <baud rate>: 1200, 2400, 4800, 9600, 19200, 38400, 57600,
                   115200
   <filename> : *.mfw | *.ipl | *.sfn | *.dfn
```

An example of a command line for updating the Main Firmware on a 7167 printer is as follows:

**AFLASH.EXE  7167 –m  COM2  115200  BV0293.MFW**

NOTE: The DOS version of the Flash Utility can only be used for printers that are connected on COM1 or COM2.  The current version of the utility does not function for COM ports higher than 2.

If an error is encountered, the Usage information will be dumped to the screen followed by a status line that displays information along such as:

**Error : Unable to open data file!**

**Error : Invalid parameter <com>!**

## Windows Command Line Firmware Update Utility

The Windows Command Line version of the Flash Utility is provided to allow batch mode of operation in a Windows 95/98/NT4/2000 environment.  If you issue a call to **TseFlash.com** with the **/?** parameter you will get the following out put that explains the parameters.
**NOTE**: This utility requires the **TseFlash.exe** to be in the same directory.  **TseFlash.com** is just a shell that sends the command line options to **TseFlash.exe** to process.

```
*** TseFlash.com Ver 1.03 ***
Thank you for using TseFlash Flash Memory Writer command line
interface utility!

Please wait...
Status: /? detected!

TseFlash [model] [download type] [COM] [baudrate]
         [parity] [stop] [filename]
   /K590      Select K590 printer.
   /7167      Select 7167 printer.
   /7197      Select 7197 printer.
Selections for the download type:
   /m          Download firmware main program.
   /i          Download firmware IPL program.
   /a          Download ANK sigle byte font.
   /s          Download ASIAN two byte font.
   /rs         Download receipt ASIAN two byte font.
   /ss         Download slip ASIAN two byte font.
Selections for the COM port:
   /COMX      Where X is any valid integer within 1~20.
Selections for the baud rate:
   /[115200] | [57600] | [38400] | [19200] | [9600] |
      [4800] | [2400] | [1200]
Selections for the parity bit:
   /[none] | [even] | [odd]
Selections for the stop bit:
   /[1] | [2]
Selections for the filename:
   Any valid binary file with extension *.mfw | *.sfn | *.dfn |
   *.ipl.
```

If you fail to use the correct parameters an error message will be displayed similar to the one below.

**Error : Too few / many command line parameters!**

The following is an example of a command line:

## TseFlash.com  /7167  /m  /COM8 /115200  /none /1 BV0293.MFW

This invokes the GUI interface shown in the next section, and displays a progress bar indicator as you would see if you had run the program through the GUI.Windows GUI Printer Firmware Update Utility

The printer firmware can be updated from the host terminal, a laptop, or a PC by executing the TSEFlash.exe utility.  There are two file formats for the flash firmware, IPL which is for the Initial Program Load (Boot) and the MFW, Main FirmWare.

Examples of the firmware are:

**BI0016.ipl**     7167 boot firmware
**BVO2.93mfw** 7167 firmware

As noted this is an example and firmware version will vary as updates are provided.

These instruction show how to reflash a 7167 printer.  However the same instructions can be used for reflashing the 7197 or 7401-K590 printers as well by selection the appropriate printer in the Change Mode button.

Unzip the flash utility (Flash311) and the flash files that you will be using into a directory on your hard disk.

## Using TseFlash.exe Utility

On the host terminal or PC running Windows, execute the utility TSEFlash.exe to start the program.  A window similar to the example below will appear on the screen.
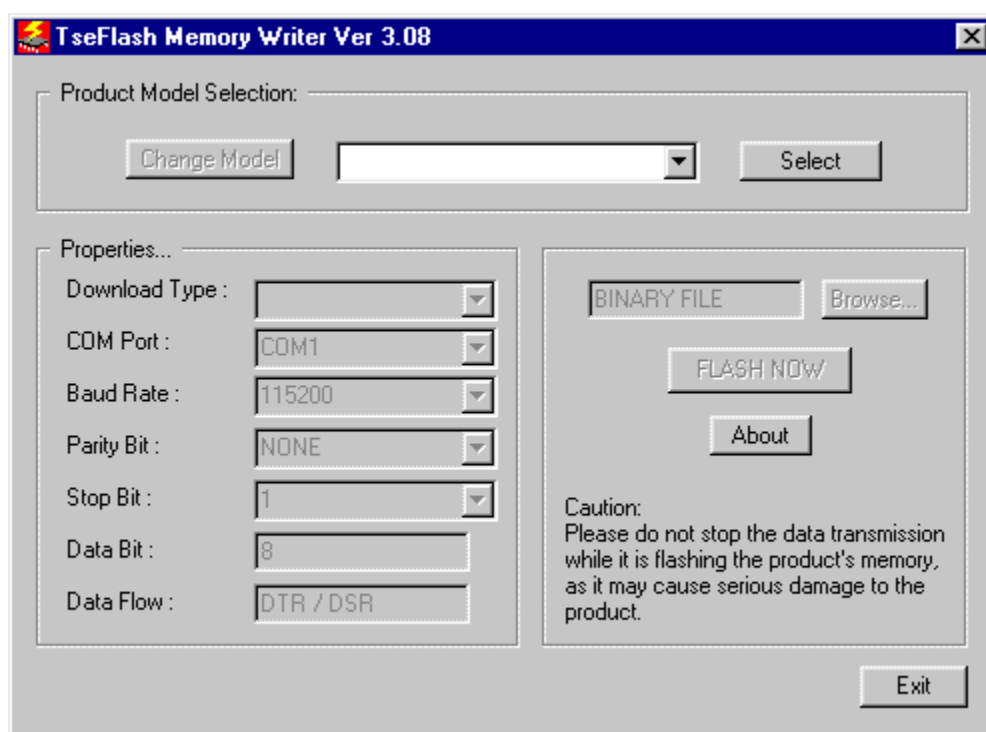
Click on the button indicated by the red arrow to display the dropdown box.  From the list, click on the printer type to be flashed. Select **K590** from the list for this printer.
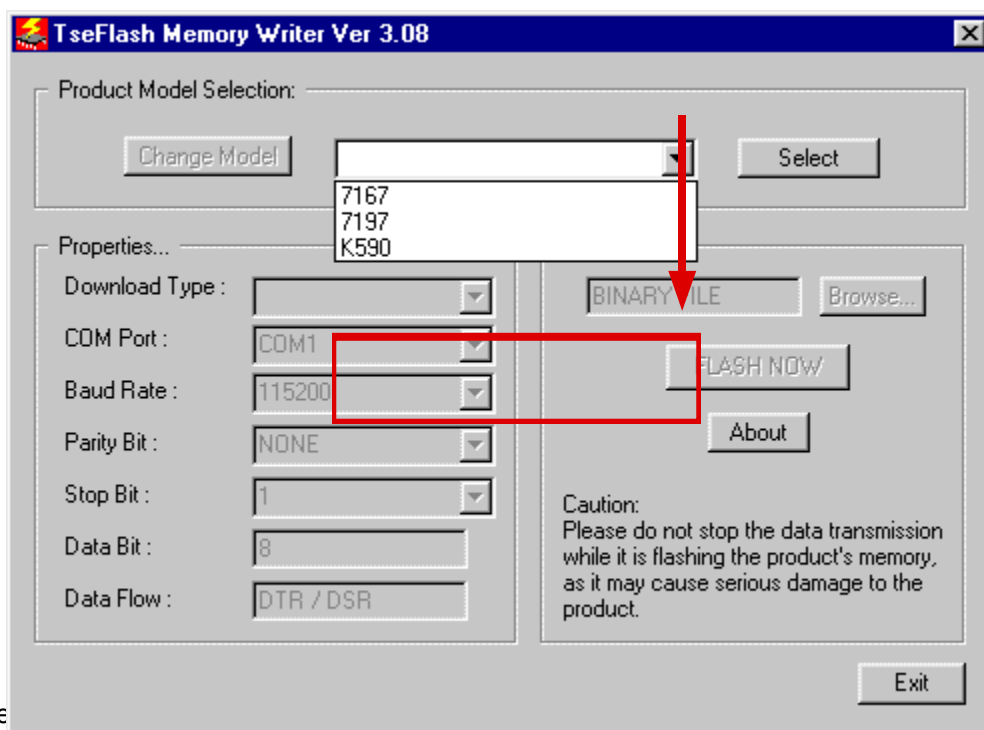


Ne_____ntinue by making the remaining options available.
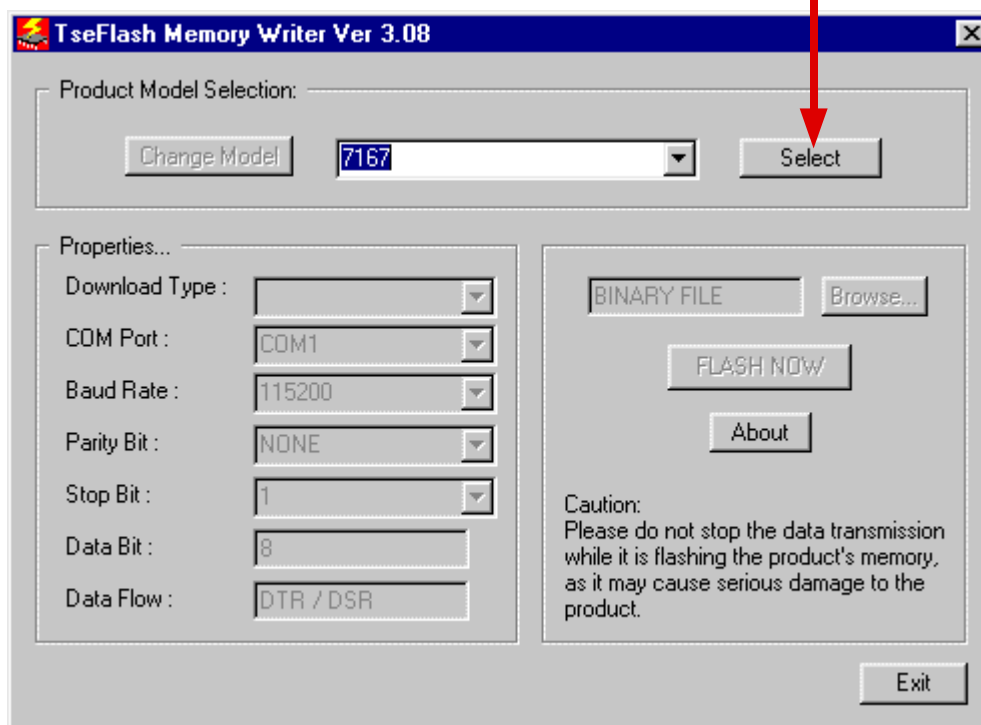
At this point, any of the properties in the red box can be changed.  Clicking on the button to the right of the property (red arrow) will display the drop-down box with options available for the associated property.
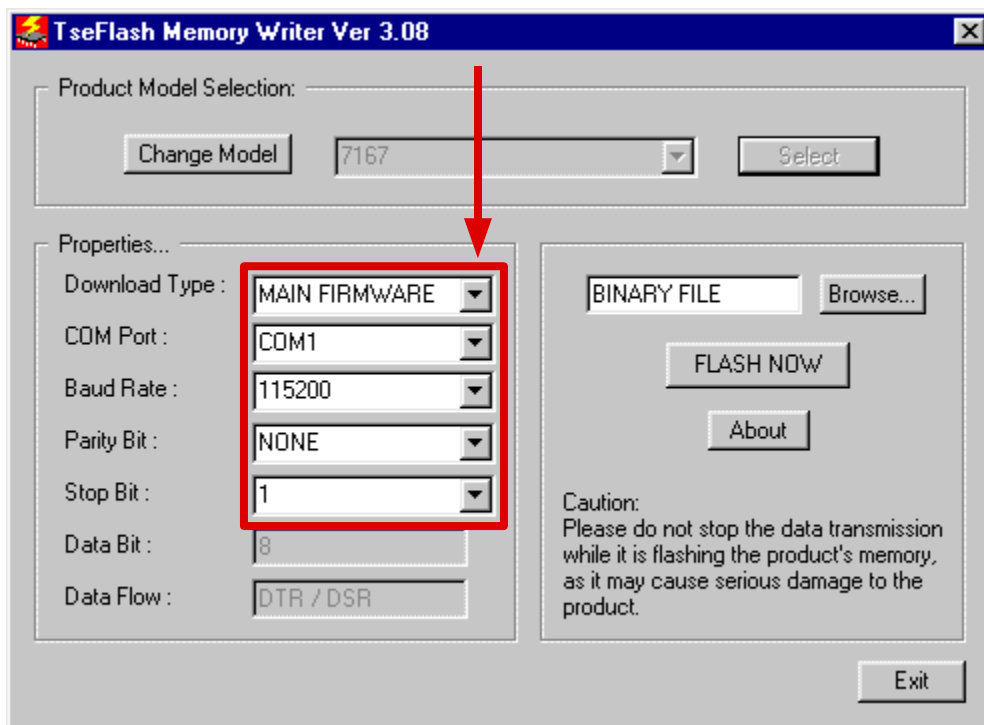
There are only two options in the "Download Type" property drop-down box to be concerned with.  **Main FIRMWARE** is used to flash the main firmware file and **IPL FIRMWARE** is used to flash the boot firmware. The utility also provides the ability to download various font files that use the noted file extensions.
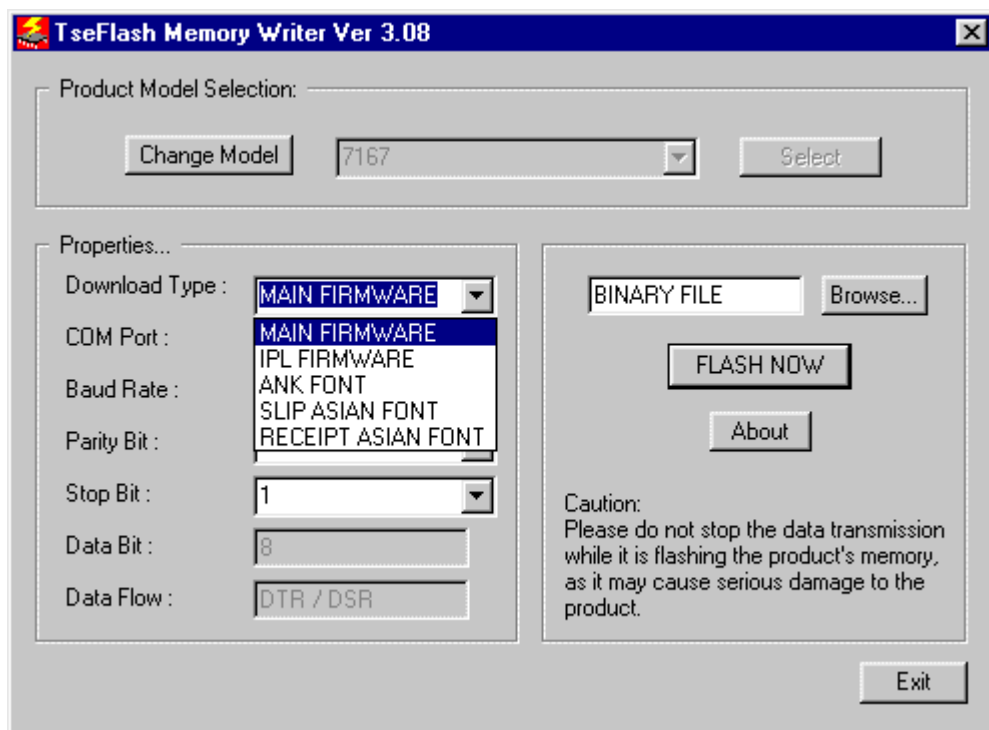
Select the COM port being used on the PC or host device to flash the printer.  The flash utility will be running on this PC.
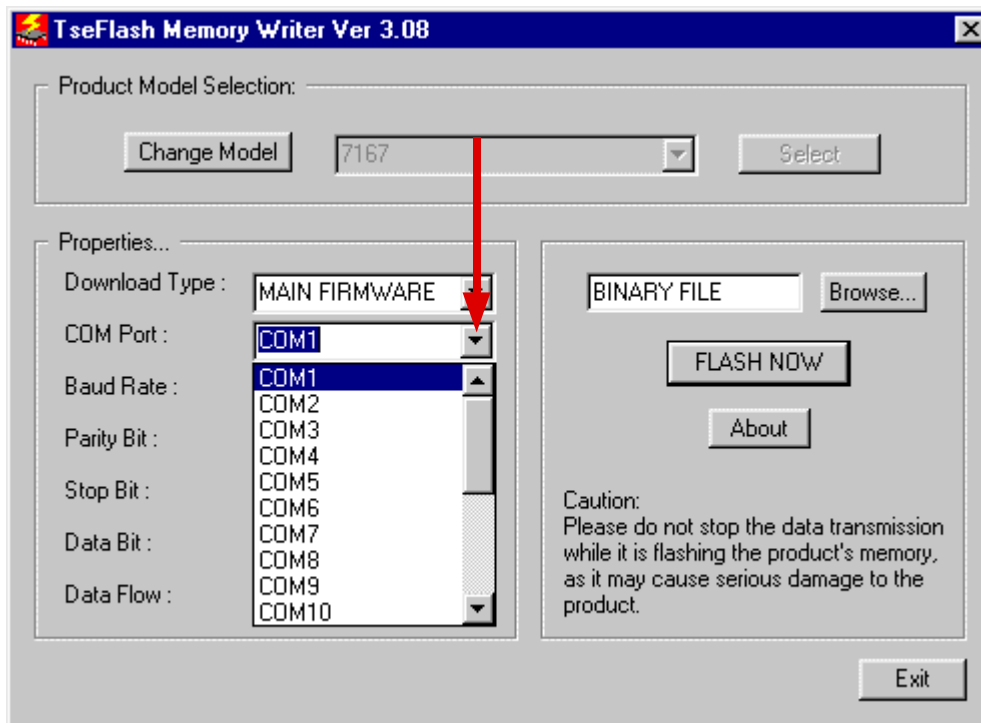
Select the printer baud rate setting. Make certain that that the COM port selected on the host device will support 115,200 baud. The utility will reset the printer baud rate to 115,200 baud flash the printer and then reset the baud rate back to the baud rate that was originally selected.
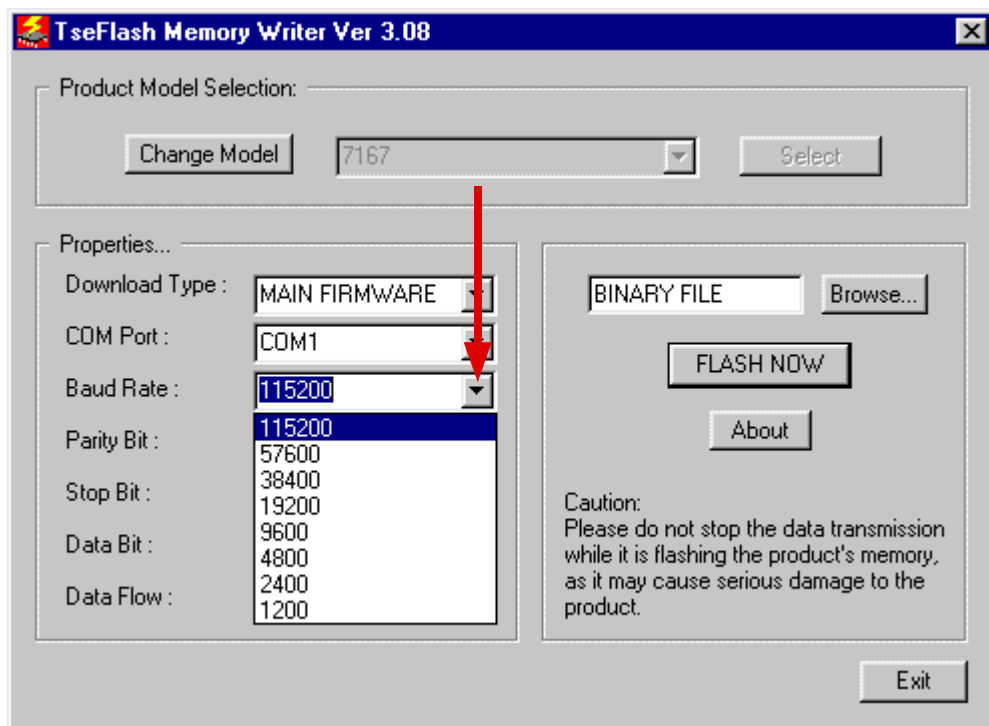
From the Parity type, select None, Odd, or Even to match this setting on the printer.
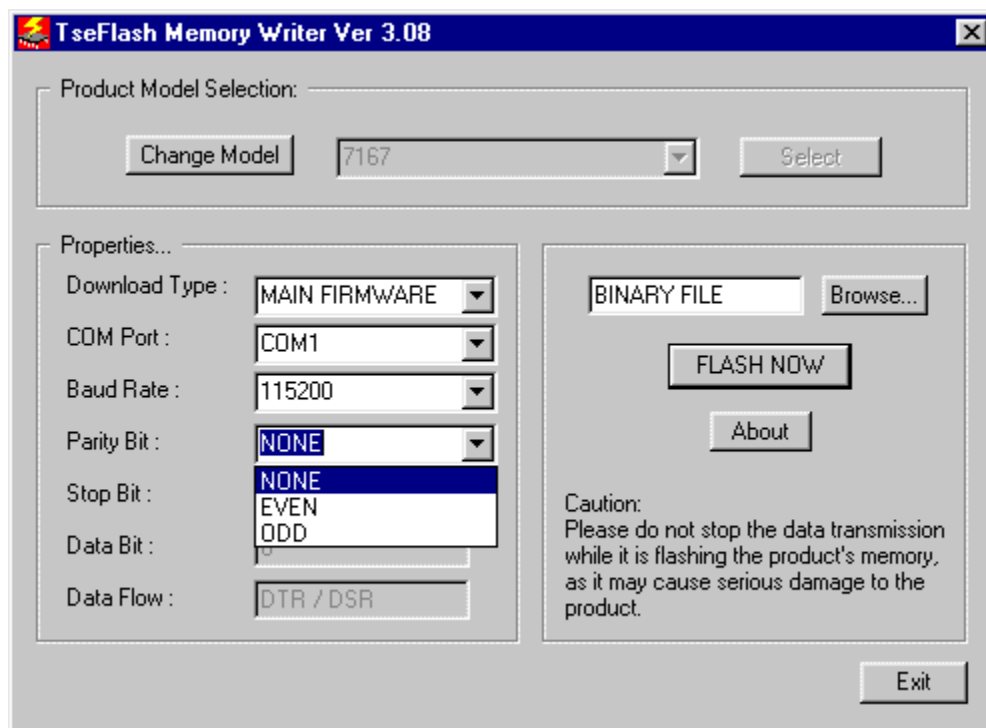
Again, match this property to this setting in the printer.
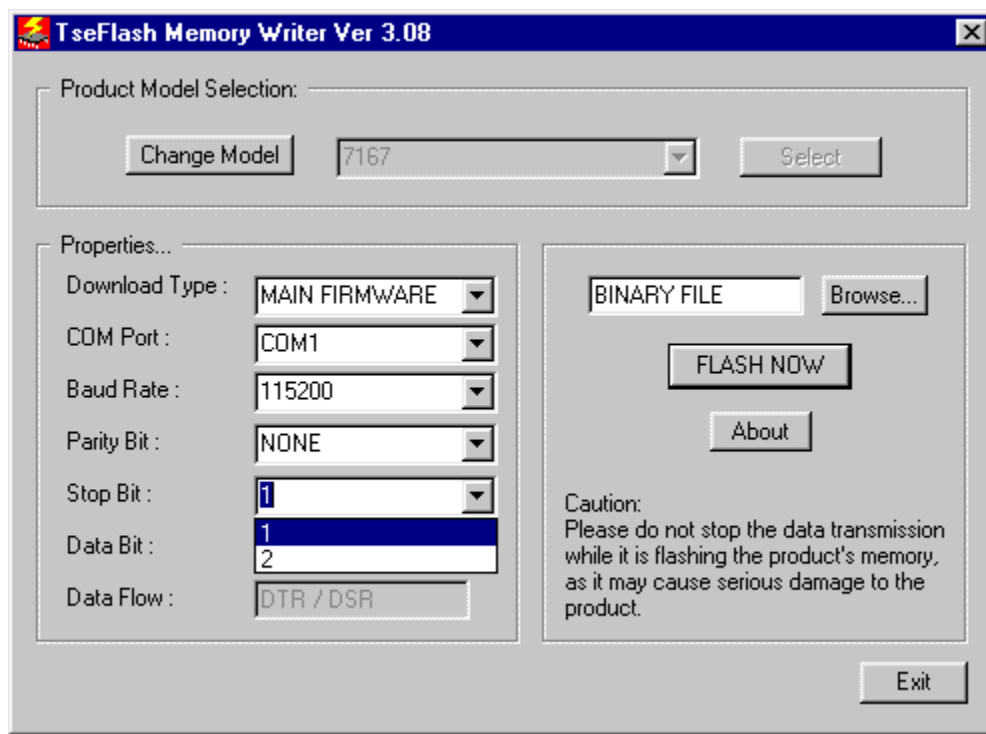
Once all the Properties are configured to match the printer settings, it is time to select the binary file to load into the printer firmware.  Click on the "Browse" button to make this selection.
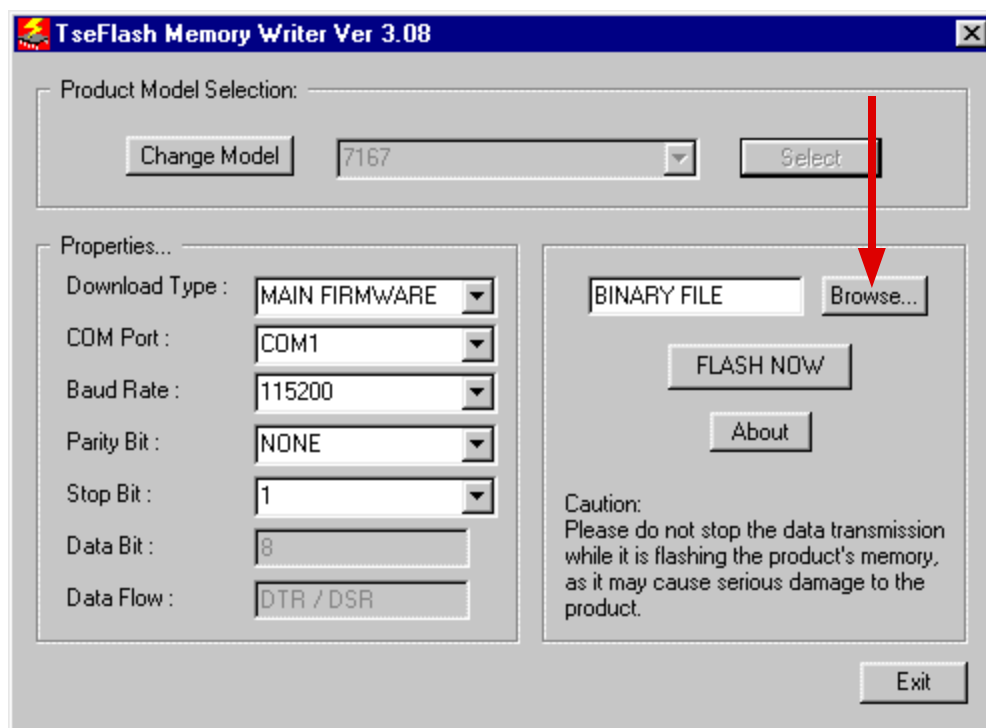


If "MAIN FIRMWARE" was selected as the Download Type, the search window will default to Main Firmware Files with a .mfw extension.

If "IPL FIRMWARE" was selected as the Download Type, the search window will default to IPL Program Files with a .ipl extension.   Select the desired file from the list and click on the "Open" button.

With the desired file selected and all properties set to the correct values, click on the "FLASH NOW" button to start the download process.
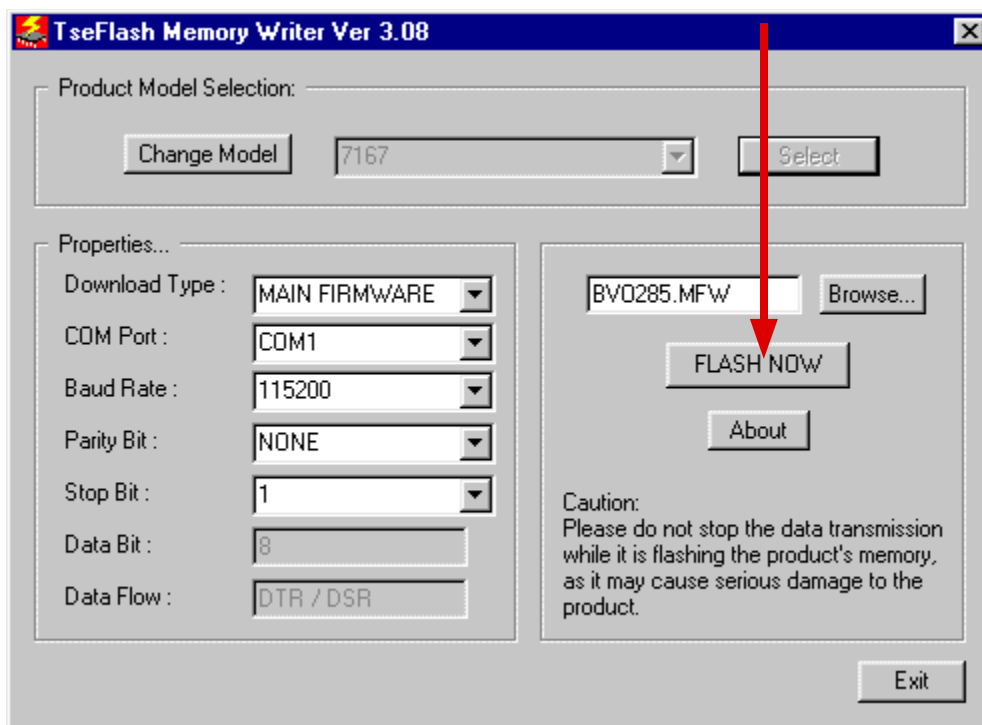
Once you start the flash process, a series of windows similar to the example shown here will appear.

**TseFlash - On Transmission...**

Changing printer baud rate to 115200 bps...

**TseFlash - On Transmission...**

Checking communication line status...

**TseFlash - On Transmission...**

Switching printer to download mode

**TseFlash - On Transmission...**

Downloading data to flash sector 1 of 2...
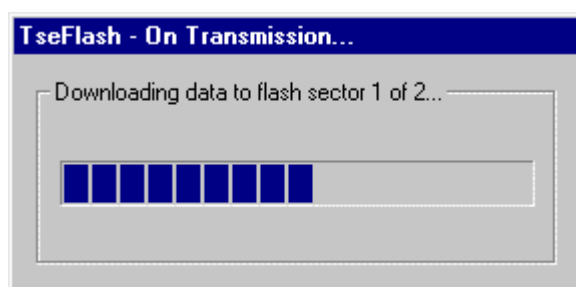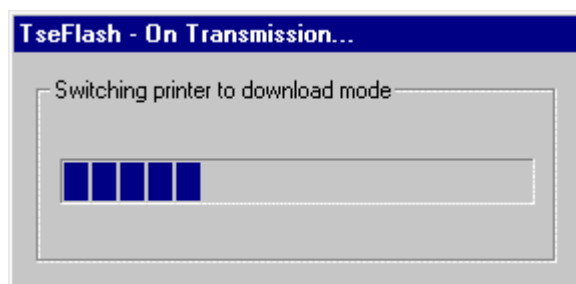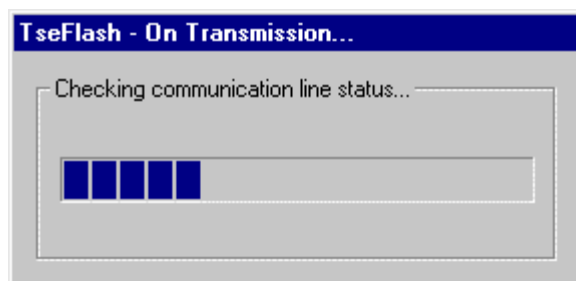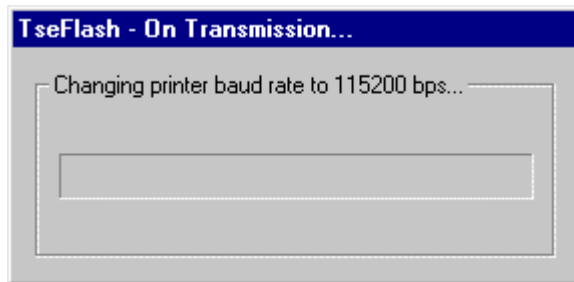
The flash sectors on this screen may vary depending on the quantity of sectors to be flashed.

**TseFlash - On Transmission...**

Reseting printer, please wait...

**TseFlash - On Transmission...**

Acknowledge

**TseFlash - On Transmission...**

Download completed!

**TseFlash - On Transmission...**

Restoring the product's previous baud rate...

TSEFLASH

Download successfully completed!

OK
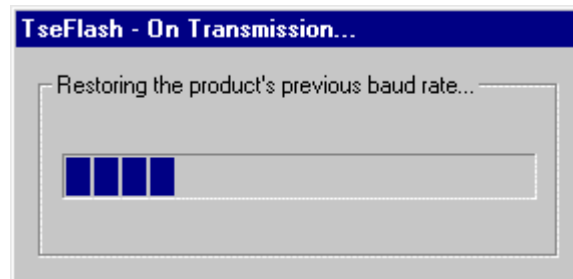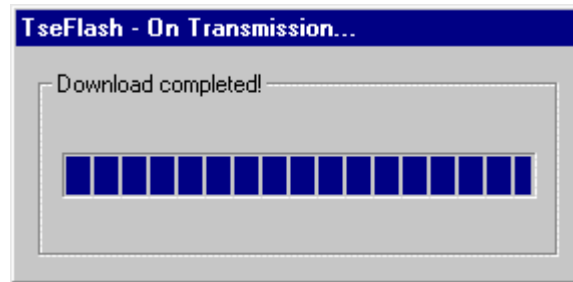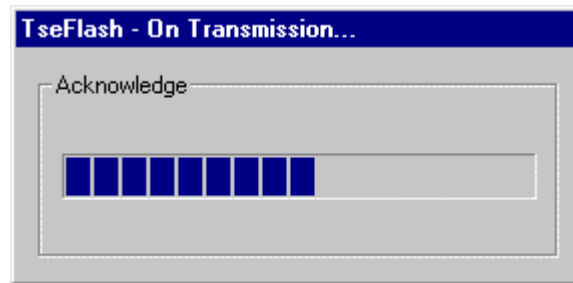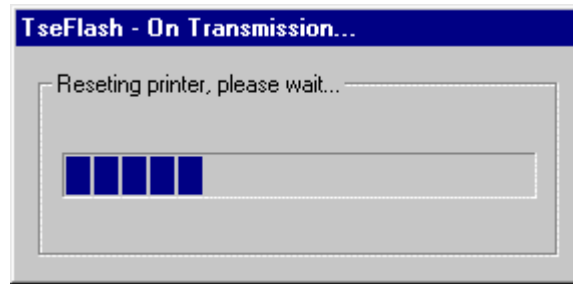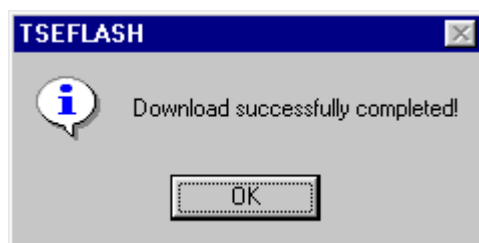
# Appendix A: Specifications

## Printing Specifications

| | Thermal Receipt Station |
|---|---|
| **Print head** | Fixed<br>576 Print Elements<br>Direct Thermal<br>Fixed Head<br>Line of Dots |
| **Character Cell** | Standard: 13 x 24 Dots<br>Compressed: 10 x 24 Dots |
| **Character Size** | .0525" Wide by .092" High |
| **Character Spacing** | 15.25 Characters per Inch (horizontal) |
| **Character Pitch** | 15.6 Characters/Inch (Standard)<br>20.3 Characters/Inch (Compressed) |
| **Columns (maximum)** | For 80 mm paper:<br>44 Columns (Standard)<br>56 Columns (Compressed)<br>For 58 mm paper:<br>32 Columns (Standard)<br>42 Columns (Compressed) |
| **Print Mode** | Standard, Compressed, Double High, Double Wide, Upside Down, Rotated, Underline, Scalable, Bold, Superscript, Italic, Subscript |
| **Resident Fonts** | Code Page 437, 850, 852, 860, 863, 865, 858, 866, 1252, Katakana, 874, 862, 864, and Space page |
| **Speed** | 3019 Lines / Minute (44 columns) maximum, Depend on Line Spacing |
| **Print Order** | Descending |
| **Line Spacing** | 7.52 Lines per Inch ( default )<br>8.47, 8.13, 7.81, 7.25, 7.00, 5.98 Lines /<br>Inch and variable lines per inch. |
| **Slew Speed** | 6.7  Inches per Second |
| **Print Zone** | 2.83  Inches Maximum |

| | Thermal Receipt Station |
|---|---|
| **Noise** | 57 dBA Sound Pressure (ISO 7779) |
| **Graphics (Optional)** | User-Defined Graphics, Logo |
| **Other** | No Reverse Paper Feed |

| | Thermal Receipt Station |
|---|---|
| **Paper Diameter** | 80 mm Max. |
| **Paper Length** | 83 Meters (273 feet) |
| **Paper Width** | 80 mm ± 1mm (3.15 Inches ± .02 Inches) |
| **Paper Thickness** | Not Applicable |
| **Printable Area** | 2.83 Inches (Max.) |

# Power Requirements

The 7197 printer receives power from a separate power supply. Here are the voltage requirements for the power supply.

| | | Maximum Current | |
|---|---|---|---|
| **Voltage** | **Station** | **Short Term** | **Long Term** |
| 24.0 V ± 10% | Receipt | 6.5 Amps | 3.15 Amps |

# Environmental Conditions

| **Operating Temperature** | 5°C to 45°C (40°F to 112°F), models with knife |
|---|---|
| | 5°C to 50°C (40°F to 120°F), models with no knife |
| **Operating Humidity** | 5% to 90% |

Condensation may occur when equipment is transferred from cold to warm areas after shipment. The printer's design permits operation after drying out and stabilizing at room temperature.

# Reliability

The numbers in the table refer to the Mean Cycle Between Failure (MCBF) for the items indicated.

| | |
|---|---|
| **Thermal Receipt Printer** | 45 Million Lines |
| **Electronics** | 460,000 On time Hours |
| **Communications Card** | 1,300,000 On Time Hours |
| **Control Panel** | 33,000,000 On Time Hours |
| **Knife** | 1 Million Cuts |
| **Power Supply** | 200,000 On-time Hours |

# Dimensions and Weight

| | |
|---|---|
| **Height** | 154.90 mm (6.1 Inches) |
| **Height with Cover Open** | 255.05 mm (10.1 Inches) |
| **Width** | 145.50 mm (5.7 Inches) |
| **Depth** | 182.40 mm (7.2 Inches) |
| **Weight** | 1.53 Kg (3.4 Pounds) |

# Density of Receipt Print Lines

When the receipt station prints high density print lines (graphics), it automatically slows down to a rate slower than 902 lines per minute. High density print lines are defined as lines with over 50% of the dots printing on the line (there are 576 total dot columns on the print station).

# Duty Cycle Restrictions (Printing Solid Blocks)

There are restrictions on the duty cycle because of the heat generated by the receipt thermal print head when printing solid blocks (regardless of the length of the block in relation to the print line). The restrictions are ambient temperature, the percentage of time (measured against one minute) of continuous solid printing, and the amount of coverage.

**Caution:** When the duty cycle approches the limits shown in the table, the receipt print head will heat up and shut down. This may damage the print head.

To avoid this problem, do one or a combination of the following:

1. Reduce the amount of coverage.
2. Reduce the time of continuous solid printing.
3. Reduce the ambient temperature.

| | Ambient Temperature | | |
|---|---|---|---|
| **Amount of Solid Coverage** | 25° C | 35° C | 50° C |

| 20% | 100% of 1 min. continuous printing | 50% of 1 min. continuous printing | 20% of 1 min. continuous printing |
|---|---|---|---|
| 40% | 50% of 1 min. continuous printing | 25% of 1 min. continuous printing | 10% of 1 min. continuous printing |
| 100% | 20% of 1 min. continuous printing | 10% of 1 min. continuous printing | 3% of 1 min. continuous printing |

# Appendix B: Print Characteristics

## Character Size

This section shows the dot pattern for characters printed on the receipt station.

### Receipt Station

The following two illustrations show the dot patterns of sample characters for standard pitch (15.6 CPI) and compressed pitch (20.3 CPI). Note that compressed pitch uses fewer dots horizontally than standard pitch.

#### Standard Pitch



11 Dots
1.38 mm
.054 in.

13 Dots
1.63 mm
.064 in.

19 Dots
2.38 mm
.094 in.

24 Dots
3.00 mm
.118 in.

B - Upper Case
m - Lower Case
g - With Descender

Ö - With Ascender
$ - Both Ascender and Desender
✳ - Graphic Symbol
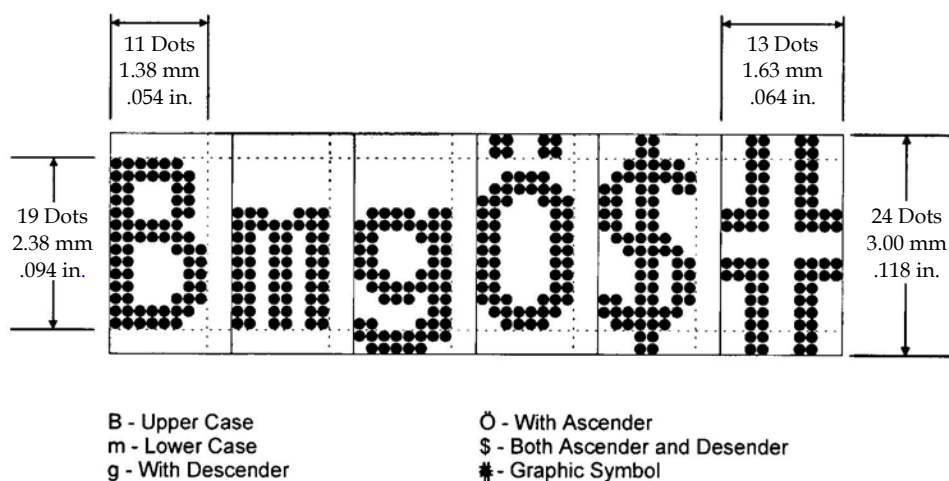
**203 DPI, 15.6 CPI Pitch (Standard)**

## Compressed Pitch



8 Dots
1.00 mm
.039 in.

10 Dots
1.25 mm
.049 in.

19 Dots
2.38 mm
.094 in.

24 Dots
3.00 mm
.118 in.

B - Upper Case
m - Lower Case
g - With Descender

Ö - With Ascender
$ - Both Ascender and Decsender
# - Graphic Symbol

**203 DPI, 19 CPI Pitch (Compressed)**
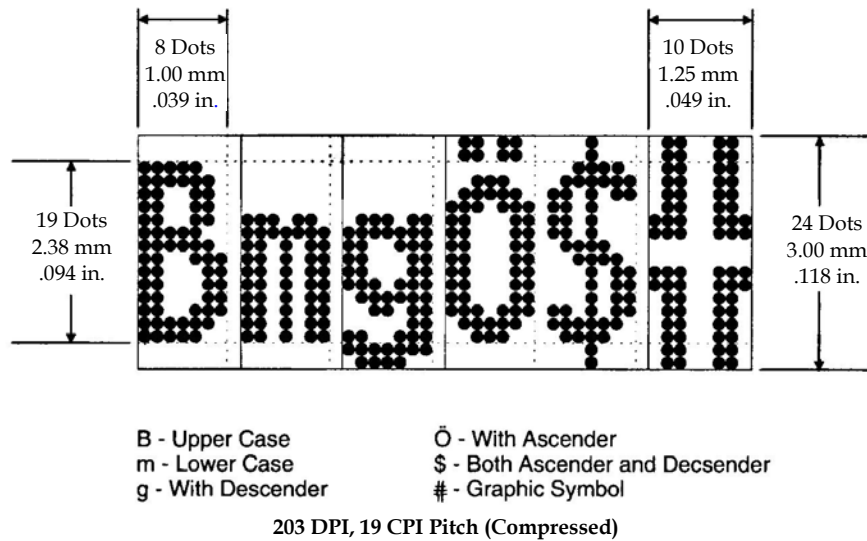
# Print Zones

This section shows the printable area for the receipt station.

## Receipt Station

### For 80 mm Paper

The receipt station centers characters (standard pitch and compressed pitch) and graphics on an 80 mm wide (3.15 inches) receipt.

- Standard pitch: 13 x 24 dots in character cell, 44 characters (columns) per line
- Compressed pitch: 10 x 24 dots in character cell, 56 characters (columns) per line
- Double byte character: 24 x 24 dots in character cell, 24 characters (columns) per line
- Graphics: 576 addressable bits

The minimum print line height is 24 dots for characters and 24 dots for graphics. The standard print line height is 27 dots (3.38 mm, .133 inches) for characters (with three extra dot rows). See the following illustration (not to scale).

Paper Width = 80 mm (3.15 inc.)

Top Margin, 17.5 mm (.69 in.)
Minimum

Print Zone, 72.10 mm (2.84 in.)
576 Dots
Left and Right Margins, 3.95 mm (.16 in.)
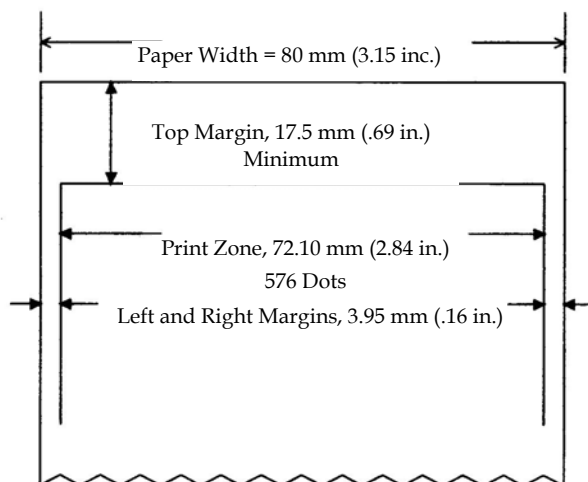
## For 58 mm Paper

The receipt station centers characters (standard pitch and compressed pitch) and graphics on an 58 mm wide (2.28 inches) receipt.

- Standard pitch: 13 x 24 dots in character cell, 32 characters (columns) per line
- Compressed pitch: 10 x 24 dots in character cell, 42 characters (columns) per line
- Double byte character: 24 x 24 dots in character cell, 17 characters (columns) per line
- Graphics: 424 addressable bits

The minimum print line height is 24 dots for characters and 24 dots for graphics. The standard print line height is 27 dots (3.38 mm, .133 inches) for characters (with three extra dot rows). See the following illustration (not to scale).

Paper Width = 58 mm (2.28 inc.)

Top Margin, 17.5 mm (.69 in.)
Minimum

Print Zone, 53.05 mm (2.09 in.)
424 Dots

Left and Right Margins, 2.47 mm (.10 in.)
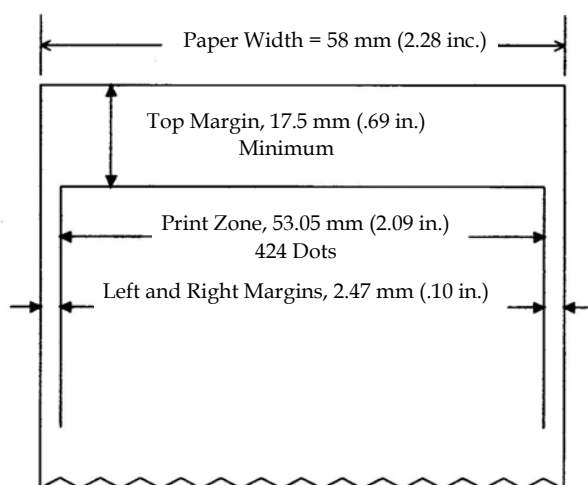
# Character Sets

The following pages show the character sets.

- PC Code Page 437 (US)
- PC Code Page 850 (Multilingual)
- PC Code Page 852 (Slavic)
- PC Code Page 860 (Portuguese)
- PC Code Page 862 (Hebrew)
- PC Code Page 863 (French-Canadian)
- PC Code Page 864 (Arabic)
- PC Code Page 865 (Nordic)
- PC Code Page 866 (Cyrillic)
- PC Code Page 1252 (Windows Latin #1)
- PC Code Page Katakana
- PC Code Page 874 (Thai)
- Space Page
- Code Page 932
- Code Page 936
- Code Page 949
- Code Page 950

## Code Page 950 Code Page 437, 850, 852 and 858

Code Page 437.

```
     2 3 4 5 6 7 8 9 A B C D E F
00     0 @ P ` p Ç É á ░ └ ╨ α ≡
01   ! 1 A Q a q ü æ í ▒ ┴ ╤ ß ±
02   " 2 B R b r é Æ ó ▓ ┬ ╥ Γ ≥
03   # 3 C S c s â ô ú │ ├ ╙ π ≤
04   $ 4 D T d t ä ö ñ ┤ ─ ╘ Σ ⌠
05   % 5 E U e u à ò Ñ ╡ ┼ ╒ σ ⌡
06   & 6 F V f v å û ª ╢ ╞ ╓ µ ÷
07   ' 7 G W g w ç ù º ╖ ╟ ╫ τ ≈
08   ( 8 H X h x ê ÿ ¿ ╕ ╚ ╪ Φ °
09   ) 9 I Y i y ë Ö ⌐ ╣ ╔ ┘ θ •
0A   * : J Z j z è Ü ¬ ║ ╩ ┌ Ω ·
0B   + ; K [ k { ï ¢ ½ ╗ ╦ █ δ √
0C   , < L \ l | î £ ¼ ╝ ╠ ▄ ∞ ⁿ
0D   - = M ] m } ì ¥ ¡ ╜ ═ ▌ φ ²
0E   . > N ^ n ~ Ä ₧ « ╛ ╬ ▐ ε ■
0F   / ? O _ o ⌂ Å ƒ » ┐ ╧ ▀ ∩
```

Code Page 850.

```
     2 3 4 5 6 7 8 9 A B C D E F
00     0 @ P ` p Ç É á ░ └ ð Ó
01   ! 1 A Q a q ü æ í ▒ ┴ Ð ß ±
02   " 2 B R b r é Æ ó ▓ ┬ Ê Ô ‗
03   # 3 C S c s â ô ú │ ├ Ë Ò ¾
04   $ 4 D T d t ä ö ñ ┤ ─ È õ ¶
05   % 5 E U e u à ò Ñ Á ┼ ı Õ §
06   & 6 F V f v å û ª Â ã Í µ ÷
07   ' 7 G W g w ç ù º À Ã Î þ ¸
08   ( 8 H X h x ê ÿ ¿ © ╚ Ï Þ °
09   ) 9 I Y i y ë Ö ® ╣ ╔ ┘ Ú ¨
0A   * : J Z j z è Ü ¬ ║ ╩ ┌ Û ·
0B   + ; K [ k { ï ø ½ ╗ ╦ █ Ù ¹
0C   , < L \ l | î £ ¼ ╝ ╠ ▄ ý ³
0D   - = M ] m } ì Ø ¡ ¢ ═ ▌ Ý ²
0E   . > N ^ n ~ Ä × « ¥ ╬ Ì ¯ ■
0F   / ? O _ o ⌂ Å ƒ » ┐ ¤ ▀
```

Code Page 852.

```
     2 3 4 5 6 7 8 9 A B C D E F
00     0 @ P ` p Ç É á ░ └ ď Ó
01   ! 1 A Q a q ü Ĺ í ▒ ┴ Đ ß ˝
02   " 2 B R b r é ĺ ó ▓ ┬ Ď Ô ˛
03   # 3 C S c s â ô ú │ ├ Ë Ň ˇ
04   $ 4 D T d t ä ö Ą ┤ ─ ď ň ˘
05   % 5 E U e u ů Ľ ą Á ┼ Ň ń §
06   & 6 F V f v ć ľ Ž Â Ă Í š ÷
07   ' 7 G W g w ç Ś ž Ě ă Î š ¸
08   ( 8 H X h x ł ś Ę Ş ╚ ě Ŕ °
09   ) 9 I Y i y ë Ö ę ╣ ╔ ┘ Ú ¨
0A   * : J Z j z Ő Ü ¬ ║ ╩ ┌ ŕ ·
0B   + ; K [ k { ő Ť ź ╗ ╦ █ Ű ű
0C   , < L \ l | î ť č ╝ ╠ ▄ ý Ř
0D   - = M ] m } Ź Ł ş Ż ═ Ţ Ý ř
0E   . > N ^ n ~ Ä × « ž ╬ Ů ţ ■
0F   / ? O _ o ⌂ Ć č » ┐ ¤ ▀ ´
```

Code Page 858.

```
     2 3 4 5 6 7 8 9 A B C D E F
00     0 @ P ` p Ç É á ░ └ ð Ó
01   ! 1 A Q a q ü æ í ▒ ┴ Ð ß ±
02   " 2 B R b r é Æ ó ▓ ┬ Ê Ô ‗
03   # 3 C S c s â ô ú │ ├ Ë Ò ¾
04   $ 4 D T d t ä ö ñ ┤ ─ È õ ¶
05   % 5 E U e u à ò Ñ Á ┼ € Õ §
06   & 6 F V f v å û ª Â ã Í µ ÷
07   ' 7 G W g w ç ù º À Ã Î þ ¸
08   ( 8 H X h x ê ÿ ¿ © ╚ Ï Þ °
09   ) 9 I Y i y ë Ö ® ╣ ╔ ┘ Ú ¨
0A   * : J Z j z è Ü ¬ ║ ╩ ┌ Û ·
0B   + ; K [ k { ï ø ½ ╗ ╦ █ Ù ¹
0C   , < L \ l | î £ ¼ ╝ ╠ ▄ ý ³
0D   - = M ] m } ì Ø ¡ ¢ ═ ▌ Ý ²
0E   . > N ^ n ~ Ä × « ¥ ╬ Ì ¯ ■
0F   / ? O _ o ⌂ Å ƒ » ┐ ¤ ▀ ´
```

## Code Page 860, 862, 863 and 864

### Code Page 860.

```
      2 3 4 5 6 7 8 9 A B C D E F
00      0 @ P ` p Ç É á ░ L ╨ α ≡
01    ! 1 A Q a q ü À í ▒ ┴ ╤ ß ±
02    " 2 B R b r é È ó ▓ ┬ ╥ Γ ≥
03    # 3 C S c s â ô ú │ ├ ╙ π ≤
04    $ 4 D T d t ã õ ñ ┤ ─ ╘ Σ ⌠
05    % 5 E U e u à ò Ñ ╡ ┼ ╒ σ ⌡
06    & 6 F V f v Á Ú ª ╢ ╞ ╓ µ ÷
07    ' 7 G W g w ç ù º ╖ ╫ ╪ τ ≈
08    ( 8 H X h x ê Ì ¿ ╕ ╚ ╫ Φ °
09    ) 9 I Y i y È Õ Ò ╣ ╔ ┘ θ ·
0A    * : J Z j z è Ü ¬ ║ ╩ ┌ Ω ·
0B    + ; K [ k { í ¢ ½ ╗ ╦ █ δ √
0C    , < L \ l | ô £ ¼ ╝ ╠ ▄ ∞ ⁿ
0D    - = M ] m } ì Ù ¡ ╜ = ▌ φ ²
0E    . > N ^ n ~ Ã ₧ « ╛ ╬ ▐ ε ■
0F    / ? O _ o ⌂ Â Ó » ┐ ╧ ▀ ∩
```

### Code Page 862

```
      2 3 4 5 6 7 8 9 A B C D E F
00      0 @ P ` p א ﬩ á ░ L ╨ α ≡
01    ! 1 A Q a q ב ם í ▒ ┴ ╤ ß ±
02    " 2 B R b r ג ן ó ▓ ┬ ╥ Γ ≥
03    # 3 C S c s ד ק ú │ ├ ╙ π ≤
04    $ 4 D T d t ה פ ñ ┤ ─ ╘ Σ ⌠
05    % 5 E U e u ו ץ Ñ ╡ ┼ ╒ σ ⌡
06    & 6 F V f v ז צ ª ╢ ╞ ╓ µ ÷
07    ' 7 G W g w ח ר º ╖ ╫ ╪ τ ≈
08    ( 8 H X h x ט ש ¿ ╕ ╚ ╫ Φ °
09    ) 9 I Y i y י ת ⌐ ╣ ╔ ┘ θ ·
0A    * : J Z j z ך ┐ ¬ ║ ╩ ┌ Ω ·
0B    + ; K [ k { כ ¢ ½ ╗ ╦ █ δ √
0C    , < L \ l | ל £ ¼ ╝ ╠ ▄ ∞ ⁿ
0D    - = M ] m } ם ¥ ¡ ╜ = ▌ φ ²
0E    . > N ^ n ~ מ ₧ « ╛ ╬ ▐ ε ■
0F    / ? O _ o ⌂ ן ƒ » ┐ ╧ ▀ ∩
```

### Code Page 863.

```
      2 3 4 5 6 7 8 9 A B C D E F
00      0 @ P ` p Ç É ¦ ░ L ╨ α ≡
01    ! 1 A Q a q ü È ´ ▒ ┴ ╤ ß ±
02    " 2 B R b r é Ê ó ▓ ┬ ╥ Γ ≥
03    # 3 C S c s â ô ú │ ├ ╙ π ≤
04    $ 4 D T d t Â Ë ¨ ┤ ─ ╘ Σ ⌠
05    % 5 E U e u à Ï ¸ ╡ ┼ ╒ σ ⌡
06    & 6 F V f v ¶ û ³ ╢ ╞ ╓ µ ÷
07    ' 7 G W g w ç ù ¯ ╖ ╫ ╪ τ ≈
08    ( 8 H X h x ê ¤ Î ╕ ╚ ╫ Φ °
09    ) 9 I Y i y ë Ô ⌐ ╣ ╔ ┘ θ ·
0A    * : J Z j z è Ü ¬ ║ ╩ ┌ Ω ·
0B    + ; K [ k { ï ¢ ½ ╗ ╦ █ δ √
0C    , < L \ l | î £ ¼ ╝ ╠ ▄ ∞ ⁿ
0D    - = M ] m } _ Ù ¾ ╜ = ▌ φ ²
0E    . > N ^ n ~ À Û « ╛ ╬ ▐ ε ■
0F    / ? O _ o ⌂ § ƒ » ┐ ╧ ▀ ∩
```

### Code Page 864

```
      2 3 4 5 6 7 8 9 A B C D E F
00      0 @ P ` p ° β · ¢ ﺪ ـ ﻪ
01    ! 1 A Q a q · ∞ ╵ ١ ء ﺒ ﻓ ﻯ
02    " 2 B R b r · φ ﺍ ٢ آ ﺔ ﻕ ﻱ
03    # 3 C S c s √ ± £ ٣ ﺃ ﺘ ﻙ ﻳ
04    $ 4 D T d t ▒ ½ ¤ ٤ ﺅ ﺸ ﻝ
05    % 5 E U e u ─ ¼ ° ٥ ﻉ ﺼ ﻡ ﻲ
06    & 6 F V f v │ ≈ ٦ ﻑ ﺽ ﻥ
07    ' 7 G W g w ┼ « ٧ ﺍ ﻁ ﻩ ﻔ
08    ( 8 H X h x ┤ » ٨ ﺏ ﻅ ﻭ ﻕ
09    ) 9 I Y i y ┬ ٩ ﺕ ﻉ ﻯ ﻷ
0A    * : J Z j z ┴ ٠ ﺙ ﻍ ﻰ ﻻ
0B    + ; K [ k { ┘ ٪ · ﺝ ﺍ ﻱ ﻝ
0C    , < L \ l | ﻝ · ﺡ ﺡ ﻥ ﻙ
0D    - = M ] m } ﺭ ٢ ﺥ ﺝ ﻵ ﻱ
0E    . > N ^ n ~ ﺯ ٤ ﺩ ﺱ × ﻍ ■
0F    / ? O _ o ⌂ ﺱ · ﺫ ﺵ ﺹ ﻉ ﺀ
```

## Code Page 865, 866, 874 and 1252

Code Page 865.

|    | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | A | B | C | D | E | F |
|----|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 00 |   | 0 | @ | P | ` | p | Ç | É | á | ░ | └ | ╨ | α | ≡ |
| 01 | ! | 1 | A | Q | a | q | ü | æ | í | ▒ | ┴ | ╤ | β | ± |
| 02 | " | 2 | B | R | b | r | é | Æ | ó | ▓ | ┬ | ╥ | Γ | ≥ |
| 03 | # | 3 | C | S | c | s | â | ô | ú | │ | ├ | ╙ | π | ≤ |
| 04 | $ | 4 | D | T | d | t | ä | ö | ñ | ┤ | ─ | ╘ | Σ | ⌠ |
| 05 | % | 5 | E | U | e | u | à | ò | Ñ | ╡ | ┼ | ╒ | σ | ⌡ |
| 06 | & | 6 | F | V | f | v | å | û | ª | ╢ | ╞ | ╓ | µ | ÷ |
| 07 | ' | 7 | G | W | g | w | ç | ù | º | ╖ | ╟ | ╫ | τ | ≈ |
| 08 | ( | 8 | H | X | h | x | ê | ÿ | ¿ | ╕ | ╚ | ╪ | Φ | ° |
| 09 | ) | 9 | I | Y | i | y | ë | Ö | ⌐ | ╣ | ╔ | ┘ | θ | • |
| 0A | * | : | J | Z | j | z | è | Ü | ¬ | ║ | ╩ | ┌ | Ω | · |
| 0B | + | ; | K | [ | k | { | ï | ø | ½ | ╗ | ╦ | █ | δ | √ |
| 0C | , | < | L | \ | l | \| | î | £ | ¼ | ╝ | ╠ | ▄ | ∞ | ⁿ |
| 0D | - | = | M | ] | m | } | ì | Ø | ¡ | ╜ | = | ▌ | φ | ² |
| 0E | . | > | N | ^ | n | ‾ | Ä | ₧ | « | ╛ | ╬ | ▐ | ε | ■ |
| 0F | / | ? | O | _ | o | ⌂ | Å | ƒ | ¤ | ┐ | ╧ | ▀ | ∩ |   |

Code Page 866.

|    | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | A | B | C | D | E | F |
|----|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 00 |   | 0 | @ | P | ` | p | А | Р | а | ░ | └ | ╨ | р | Ё |
| 01 | ! | 1 | A | Q | a | q | Б | С | б | ▒ | ┴ | ╤ | с | ё |
| 02 | " | 2 | B | R | b | r | В | Т | в | ▓ | ┬ | ╥ | т | Є |
| 03 | # | 3 | C | S | c | s | Г | У | г | │ | ├ | ╙ | у | є |
| 04 | $ | 4 | D | T | d | t | Д | Ф | д | ┤ | ─ | ╘ | ф | Ї |
| 05 | % | 5 | E | U | e | u | Е | Х | е | ╡ | ┼ | ╒ | х | ї |
| 06 | & | 6 | F | V | f | v | Ж | Ц | ж | ╢ | ╞ | ╓ | ц | Ў |
| 07 | ' | 7 | G | W | g | w | З | Ч | з | ╖ | ╟ | ╫ | ч | ў |
| 08 | ( | 8 | H | X | h | x | И | Ш | и | ╕ | ╚ | ╪ | ш | ° |
| 09 | ) | 9 | I | Y | i | y | Й | Щ | й | ╣ | ╔ | ┘ | щ | • |
| 0A | * | : | J | Z | j | z | К | Ъ | к | ║ | ╩ | ┌ | ъ | · |
| 0B | + | ; | K | [ | k | { | Л | Ы | л | ╗ | ╦ | █ | ы | √ |
| 0C | , | < | L | \ | l | \| | М | Ь | м | ╝ | ╠ | ▄ | ь | № |
| 0D | - | = | M | ] | m | } | Н | Э | н | ╜ | = | ▌ | э | ¤ |
| 0E | . | > | N | ^ | n | ‾ | О | Ю | о | ╛ | ╬ | ▐ | ю | ■ |
| 0F | / | ? | O | _ | o | ⌂ | П | Я | п | ┐ | ╧ | ▀ | я |   |

Code Page 874.

|    | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | A | B | C | D | E | F |
|----|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 00 |   | 0 | @ | P | ` | p |   |   | ฯ | ั | เ | ๐ | ◌ | ๐ |
| 01 | ! | 1 | A | Q | a | q |   |   | �า | ิ | แ | ๑ | ◌ | ๑ |
| 02 | " | 2 | B | R | b | r |   |   | ำ | ี | โ | ๒ | ◌ | ๒ |
| 03 | # | 3 | C | S | c | s |   |   | ิ | ึ | ใ | ๓ | ◌ | ๓ |
| 04 | $ | 4 | D | T | d | t |   |   | ี | ื | ไ | ๔ | ◌ | ๔ |
| 05 | % | 5 | E | U | e | u |   |   | ึ | ุ | ำ | ๕ | ◌ | ๕ |
| 06 | & | 6 | F | V | f | v |   |   | ื | ู | ๆ | ๖ | ◌ | ๖ |
| 07 | ' | 7 | G | W | g | w |   |   | ุ | ฿ | ๅ | ๗ | ◌ | ๗ |
| 08 | ( | 8 | H | X | h | x |   |   | ู | เ | ๅ | ๘ | ◌ | ๘ |
| 09 | ) | 9 | I | Y | i | y |   |   | ฯ | แ | ๅ | ๙ | ◌ | ๙ |
| 0A | * | : | J | Z | j | z |   |   | ๆ | โ | ๅ | ๚ | ◌ | ๚ |
| 0B | + | ; | K | [ | k | { |   |   | ็ | ใ | ๅ | ๛ | ◌ | ¢ |
| 0C | , | < | L | \ | l | \| |   |   | ่ | ไ | ๅ |   | ◌ | ¢ |
| 0D | - | = | M | ] | m | } |   |   | ้ | ๅ | ๅ |   | ◌ | ¬ |
| 0E | . | > | N | ^ | n | ‾ |   |   | ๊ | ๅ | ๅ |   | ◌ |   |
| 0F | / | ? | O | _ | o | ⌂ |   |   | ๋ | ๅ | ๅ | ฿ | ◌ |   |

Code Page 1252.

|    | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | A | B | C | D | E | F |
|----|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 00 |   | 0 | @ | P | ` | p | € |   |   | ° | À | Ð | à | ð |
| 01 | ! | 1 | A | Q | a | q |   | ' | ¡ | ± | Á | Ñ | á | ñ |
| 02 | " | 2 | B | R | b | r | , | ' | ¢ | ² | Â | Ò | â | ò |
| 03 | # | 3 | C | S | c | s | ƒ | " | £ | ³ | Ã | Ó | ã | ó |
| 04 | $ | 4 | D | T | d | t | „ | " | ¤ | ´ | Ä | Ô | ä | ô |
| 05 | % | 5 | E | U | e | u | … | • | ¥ | µ | Å | Õ | å | õ |
| 06 | & | 6 | F | V | f | v | † | – | ¦ | ¶ | Æ | Ö | æ | ö |
| 07 | ' | 7 | G | W | g | w | ‡ | — | § | · | Ç | × | ç | ÷ |
| 08 | ( | 8 | H | X | h | x | ˆ | ˜ | ¨ | ¸ | È | Ø | è | ø |
| 09 | ) | 9 | I | Y | i | y | ‰ | ™ | © | ¹ | É | Ù | é | ù |
| 0A | * | : | J | Z | j | z | Š | š | ª | º | Ê | Ú | ê | ú |
| 0B | + | ; | K | [ | k | { | ‹ | › | « | » | Ë | Û | ë | û |
| 0C | , | < | L | \ | l | \| | Œ | œ | ¬ | ¼ | Ì | Ü | ì | ü |
| 0D | - | = | M | ] | m | } |   |   | - | ½ | Í | Ý | í | ý |
| 0E | . | > | N | ^ | n | ‾ | Ž | ž | ® | ¾ | Î | Þ | î | þ |
| 0F | / | ? | O | _ | o | ⌂ |   | Ÿ | ¯ | ¿ | Ï | ß | ï | ÿ |

## Code Page Katakana

```
Code Page KATAKANA.

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

00      0 @ P ` p _  ⊥   - タ ミ ニ X
01   ! 1 A Q a q _ ┬ ° ア チ 4 ヒ 円
02   " 2 B R b r ▄ ┤ ｢ イ ツ × ‡ 年
03   # 3 C S c s ▄ ├ J ウ テ Ｅ ┐ 月
04   $ 4 D T d t ■ ┴ 、 エ ト ヤ ◢ 日
05   % 5 E U e u ■ -- ゜ オ ナ ﹂ ◣ 時
06   & 6 F V f v ■ │ ヲ カ ニ ヨ ◥ 分
07   ' 7 G W g w ■ │ ア キ ヌ ラ ◢ 秒
08   ( 8 H X h x │ ┌ イ ク ネ リ ♠ 〒
09   ) 9 I Y i y │ ┐ ウ ケ ノ ル ♥ 市
0A   * : J Z j z ┃ └ エ コ ハ レ ♦ 区
0B   + ; K [ k { ┃ ┘ オ サ ヒ ロ ♣ 町
0C   , < L \ l | ┃ ╭ ヤ シ フ ワ ● 村
0D   - = M ] m } ┃ ╮ ユ ス ヘ ン ○ 人
0E   . > N ^ n ˜ ┃ ╰ ヨ セ ホ ˝ / 爨
0F   / ? O _ o △ ┼ ノ ツ ソ マ ゜ \
```

## Code Page 932

Code page 932

| 20 | | ! | " | # | $ | % | & | ' | ( | ) | * | + | , | - | . | / |
|----|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 30 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | : | ; | < | = | > | ? |
| 40 | @ | A | B | C | D | E | F | G | H | I | J | K | L | M | N | O |
| 50 | P | Q | R | S | T | U | V | W | X | Y | Z | [ | ¥ | ] | ^ | _ |
| 60 | ` | a | b | c | d | e | f | g | h | i | j | k | l | m | n | o |
| 70 | p | q | r | s | t | u | v | w | x | y | z | { | | | } | ‾ | |
| 80 | | | | | | | | | | | | | | | | | |
| 90 | | | | | | | | | | | | | | | | | |
| A0 | | 。| 「| 」| 、| ・| ヲ| ァ| ィ| ゥ| ェ| ォ| ャ| ュ| ョ| ッ |
| B0 | ｰ | ア| イ| ウ| エ| オ| カ| キ| ク| ケ| コ| サ| シ| ス| セ| ソ |
| C0 | タ| チ| ツ| テ| ト| ナ| ニ| ヌ| ネ| ノ| ハ| ヒ| フ| ヘ| ホ| マ |
| D0 | ミ| ム| メ| モ| ヤ| ユ| ヨ| ラ| リ| ル| レ| ロ| ワ| ン| ゛| ゜ |
| E0 | | | | | | | | | | | | | | | | | |
| F0 | | | | | | | | | | | | | | | | | |

Code page 932-81

| 40 | _ | 、| 。| ，| ．| ・| ： | ； | ？ | ！ | ゛| ゜| ´ | ` | ¨ | ^ |
|----|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 50 | ‾ | ＿| ヽ| ヾ| ゝ| ゞ| 〃| 仝| 々| 〆| 〇| ー| ―| ‐| ／| ＼ |
| 60 | ～| ∥| ｜| …| ‥| ' | ' | " | " | （| ）| 〔| 〕| ［| ］| ｛ |
| 70 | ｝| 〈| 〉| 《| 》| 「| 」| 『| 』| 【| 】| ＋| −| ±| × | |
| 80 | | ÷| ＝| ≠| ＜| ＞| ≦| ≧| ∞| ∴| ♂| ♀| °| ′| ″| ℃| ¥ |
| 90 | ＄| ￠| ￡| ％| ＃| ＆| ＊| ＠| §| ☆| ★| ○| ●| ◎| ◇| ◆ |
| A0 | □| ■| △| ▲| ▽| ▼| ※| 〒| →| ←| ↑| ↓| 〓| | | |
| B0 | | | | | | ∈| ∋| ⊆| ⊇| ⊂| ⊃| ∪| ∩ | | | |
| C0 | | | | | | ∧| ∨| ￢| ⇒| ⇔| ∀| ∃ | | | | |
| D0 | | | | | | | | | | ∠| ⊥| ⌒| ∂| ∇| ≡ | |
| E0 | ≒| ≪| ≫| √| ∽| ∝| ∵| ∫| ∬ | | | | | | | |
| F0 | Å| ‰| ♯| ♭| ♪| †| ‡| ¶ | | | | | ○ | | | |

Code page 932-82

| 40 | | | | | | | | | | | | | | | | | 0 |
|----|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 50 | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | | | | | | |
| 60 | | A | B | C | D | E | F | G | H | I | J | K | L | M | N | O | P |
| 70 | | Q | R | S | T | U | V | W | X | Y | Z | | | | | | |
| 80 | | | a | b | c | d | e | f | g | h | i | j | k | l | m | n | o |
| 90 | | p | q | r | s | t | u | v | w | x | y | z | | | | | あ |
| A0 | あ| ぃ| い| ぅ| う| ぇ| え| ぉ| お| か| が| き| ぎ| く| ぐ| け |
| B0 | げ| こ| ご| さ| ざ| し| じ| す| ず| せ| ぜ| そ| ぞ| た| だ| ち |
| C0 | ぢ| っ| つ| づ| て| で| と| ど| な| に| ぬ| ね| の| は| ば| ぱ |
| D0 | ひ| び| ぴ| ふ| ぶ| ぷ| へ| べ| ぺ| ほ| ぼ| ぽ| ま| み| む| め |
| E0 | も| ゃ| や| ゅ| ゆ| ょ| よ| ら| り| る| れ| ろ| ゎ| わ| ゐ| ゑ |
| F0 | を| ん | | | | | | | | | | | | | | |

Code page 932-83

| 40 | ァ| ア| ィ| イ| ゥ| ウ| ェ| エ| ォ| オ| カ| ガ| キ| ギ| ク| グ |
|----|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 50 | ケ| ゲ| コ| ゴ| サ| ザ| シ| ジ| ス| ズ| セ| ゼ| ソ| ゾ| タ| ダ |
| 60 | チ| ヂ| ッ| ツ| ヅ| テ| デ| ト| ド| ナ| ニ| ヌ| ネ| ノ| ハ| バ |
| 70 | パ| ヒ| ビ| ピ| フ| ブ| プ| ヘ| ベ| ペ| ホ| ボ| ポ| マ| ミ| |
| 80 | ム| メ| モ| ャ| ヤ| ュ| ユ| ョ| ヨ| ラ| リ| ル| レ| ロ| ヮ| ワ |
| 90 | ヰ| ヱ| ヲ| ン| ヴ| ヵ| ヶ| | | | | | | | | A |
| A0 | Β| Γ| Δ| Ε| Ζ| Η| Θ| Ι| Κ| Λ| Μ| Ν| Ξ| Ο| Π| Ρ |
| B0 | Σ| Τ| Υ| Φ| Χ| Ψ| Ω| | | | | | | | | α |
| C0 | β| γ| δ| ε| ζ| η| θ| ι| κ| λ| μ| ν| ξ| ο| π| ρ |
| D0 | σ| τ| υ| φ| χ| ψ| ω | | | | | | | | | |
| E0 | | | | | | | | | | | | | | | | |
| F0 | | | | | | | | | | | | | | | | |

## Code Page 932 (Cont)

### Code page 932-84

```
40   А Б В Г Д Е Ё Ж З И Й К Л М Н О
50   П Р С Т У Ф Х Ц Ч Ш Щ Ъ Ы Ь Э Ю
60   Я
70   а б в г д е ё ж з и й к л м н
80   о п р с т у ф х ц ч ш щ ъ ы ь э
90   ю я                                            ─
A0   │ ┌ ┐ ┘ └ ├ ┬ ┤ ┴ ┼ ━ ┃ ┏ ┓ ┛ ┗
B0   ┣ ┳ ┫ ┻ ╋ ┠ ┯ ┨ ┷ ┿ ┝ ┰ ┥ ┸ ╂
C0
D0
E0
F0
```

### Code page 932-87

```
40   ①②③④⑤⑥⑦⑧⑨⑩⑪⑫⑬⑭⑮⑯
50   ⑰⑱⑲⑳ Ⅰ Ⅱ Ⅲ Ⅳ Ⅴ Ⅵ Ⅶ Ⅷ Ⅸ Ⅹ
60   ㌔㌧㌃㌶㌫㍑㍍㌦㌢㌥㌺㌞㌰㌯㍊㎜
70   ㎝㎞㎎㎏㏄㎡                              ㍻
80   〝〟 ㏍ ㍉ ㌔㌟㌍㈱㈲㈹㍾㍽㍼㍿
90   ≒≡∫∮ΣΣ√⊥∠∟⊿∵∩∪
A0
B0
C0
D0
E0
F0
```

### Code page 932-88

```
40
50
60
70
80
90                                              亜
A0   唖娃阿哀愛挨姶逢葵茜穐悪握渥旭葦
B0   芦鯵梓圧斡扱宛姐虻飴絢綾鮎或粟袷
C0   安庵按暗案闇鞍杏以伊位依偉囲夷委
D0   威尉惟意慰易椅為畏異移維緯胃萎衣
E0   謂違遺医井亥域育郁磯一壱溢逸稲茨
F0   芋鰯允印咽員因姻引飲淫胤蔭
```

### Code page 932-89

```
40   院陰隠韻吋右宇烏羽迂雨卯鵜窺丑碓
50   臼渦嘘唄欝蔚鰻姥厩浦瓜閏噂云運雲
60   荏餌叡営嬰影映曳栄永泳洩瑛盈穎頴
70   英衛詠鋭液疫益駅悦謁越閲榎厭円
80   園堰奄宴延怨掩援沿演炎焔煙燕猿縁
90   艶苑薗遠鉛鴛塩於汚甥凹央奥往応押
A0   旺横欧殴王翁襖鴬鴎黄岡沖荻億屋憶
B0   臆桶牡乙俺卸恩温穏音下化仮何伽価
C0   佳加可嘉夏嫁家寡科暇果架歌河火珂
D0   禍禾稼箇花苛茄荷華菓蝦課嘩貨迦過
E0   霞蚊俄峨我牙画臥芽蛾賀雅餓駕介会
F0   解回塊壊廻快怪悔恢懐戒拐改
```

## Code Page 932 (Cont)

### Code page 932-8A

```
40  魁晦械海灰界皆絵芥蟹開階貝凱劾外
50  咳害崖慨概涯碍蓋街該鎧骸浬馨蛙垣
60  柿蛎鈎劃嚇各廓拡攪格核殻獲確穫覚
70  角赫較郭閣隔革学岳楽額顎掛笠樫
80  橿梶鰍潟割喝恰括活渇滑葛褐轄且鰹
90  叶椛樺鞄株兜竃蒲釜鎌噛鴨栢茅萱粥
A0  刈苅瓦乾侃冠寒刊勘勧巻喚堪姦完官
B0  寛干幹患感慣憾換敢柑桓棺款歓汗漢
C0  澗潅環甘監看竿管簡緩缶翰肝艦莞観
D0  諌貫還鑑間閑関陥韓館舘丸含岸巌玩
E0  癌眼岩翫贋雁頑顔願企伎危喜器基奇
F0  嬉寄岐希幾忌揮机旗既期棋棄
```

### Code page 932-8B

```
40  機帰毅気汽幾祈季稀紀徽規記貴起軌
50  輝飢騎鬼亀偽儀妓宜戯技擬欺犠疑祇
60  義蟻誼議掬菊鞠吉吃喫桔橘詰砧杵黍
70  却客脚虐逆丘久仇休及吸宮弓急救
80  朽求汲泣灸球究窮笈級糾給旧牛去居
90  巨拒拠挙渠虚許距鋸漁禦魚亨享京供
A0  侠僑兇競共凶協匡卿叫喬境峡強彊怯
B0  恐恭挟教橋況狂狭矯胸脅興蕎郷鏡響
C0  饗驚仰凝尭暁業局曲極玉桐粁僅勤均
D0  巾錦斤欣欽琴禁禽筋緊芹菌衿襟謹近
E0  金吟銀九倶句区狗玖矩苦躯駆駈駒具
F0  愚虞喰空偶寓遇隅串櫛釧屑屈
```

### Code page 932-8C

```
40  掘窟沓靴轡窪熊隈粂栗繰桑鍬勲君薫
50  訓群軍郡卦袈祁係傾刑兄啓圭珪型契
60  形径恵慶慧憩掲携敬景桂渓畦稽系経
70  継繋罫茎荊蛍計詣警軽頚鶏芸迎鯨
80  劇戟撃激隙桁傑欠決潔穴結血訣月件
90  倹倦健兼券剣喧圏堅嫌建憲懸拳捲検
A0  権牽犬献研硯絹県肩見謙賢軒遣鍵険
B0  顕験鹸元原厳幻弦減源玄現絃舷言諺
C0  限乎個古呼固姑孤己庫弧戸故枯湖狐
D0  糊袴股胡菰虎誇跨鈷雇顧鼓五互伍午
E0  呉吾娯後御悟梧檎瑚碁語誤護醐乞鯉
F0  交佼侯候倖光公功効勾厚口向
```

### Code page 932-8D

```
40  后喉坑垢好孔孝宏工巧巷幸広庚康弘
50  恒慌抗拘控攻昂晃更杭校梗構江洪浩
60  港溝甲皇硬稿糠紅紘絞綱耕考肯肱腔
70  膏航荒行衡講貢購郊酵鉱砿鋼閤降
80  項香高鴻剛劫号合壕拷濠豪轟麹克刻
90  告国穀酷鵠黒獄漉腰甑忽惚骨狛込此
A0  頃今困坤墾婚恨懇昏昆根梱混痕紺艮
B0  魂些佐叉唆嵯左差査沙瑳砂詐鎖裟坐
C0  座挫債催再最哉塞妻宰彩才採栽歳済
D0  災采犀砕砦祭斎細菜裁載際剤在材罪
E0  財冴坂阪堺榊肴咲崎埼碕鷺作削咋搾
F0  昨朔柵窄策索錯桜鮭笹匙冊刷
```

### Code page 932-8E

```
40  察拶撮擦札殺薩雑皐鯖捌錆鮫皿晒三
50  傘参山惨撒散桟燦珊産算纂蚕讃賛酸
60  餐斬暫残仕仔伺使刺司史嗣四士始姉
70  姿子屍市師志思指支孜斯施旨枝止
80  死氏獅祉私糸紙紫肢脂至視詞詩試誌
90  諮資賜雌飼歯事似侍児字寺慈持時次
A0  滋治爾璽痔磁示而耳自蒔辞汐鹿式識
B0  鴫竺軸宍雫七叱執失嫉室悉湿漆疾質
C0  実蔀篠偲柴芝屡蕊縞舎写射捨赦斜煮
D0  社紗者謝車遮蛇邪借勺尺杓灼爵酌釈
E0  錫若寂弱惹主取守手朱殊狩珠種腫趣
F0  酒首儒受呪寿授樹綬需囚収周
```

### Code page 932-8F

```
40  宗就州修愁拾洲秀秋終繍習臭舟蒐衆
50  襲讐蹴輯週酋酬集醜什住充十従戎柔
60  汁渋獣縦重銃叔夙宿淑祝縮粛塾熟出
70  術述俊峻春瞬竣舜駿准循旬楯殉淳
80  準潤盾純巡遵醇順処初所曙渚庶緒
90  署書薯藷諸助叙女序徐恕鋤除傷償勝
A0  匠升召哨商唱嘗奨妾娼宵将小少尚庄
B0  床廠彰承抄招掌捷昇昌昭晶松梢樟樵
C0  沼消渉湘焼焦照症省硝礁祥称章笑粧
D0  紹肖菖蒋蕉衝裳訟証詔詳象賞醤鉦鍾
E0  鍾障鞘上丈丞乗冗剰城場壌嬢常情擾
F0  条杖浄状畳穣蒸譲醸錠嘱埴飾
```

Code Page 932 (Cont)

Code page 932-90

```
40  拭植殖燭繊職色触食蝕辱尻伸信侵唇
50  娠寝審心慎振新晋森榛浸深申疹真神
60  秦紳臣芯薪親診身辛進針震人仁刃塵
70  壬尋甚尽腎訊迅陣靭笥諏須酢図厨
80  逗吹垂帥推水炊睡粋翠衰遂酔錐錘随
90  瑞髄崇嵩数枢趨雛据杉椙菅頗雀裾澄
A0  摺寸世瀬畝是凄制勢姓征性成政整星
B0  晴棲栖正清牲生盛精聖声製西誠誓請
C0  逝醒青静斉税脆隻席惜戚斥昔析石積
D0  籍績脊責赤跡蹟碩切拙接摂折設窃節
E0  説雪絶舌蝉仙先千占宣専尖川戦扇撰
F0  栓栴泉浅洗染潜煎煽旋穿箭線
```

Code page 932-91

```
40  繊羨腺舛船薦詮賎践選遷銭銑閃鮮前
50  善漸然全禅繕膳糎噌塑岨措曾曽楚狙
60  疏疎礎祖租粗素組蘇訴阻遡鼠僧創双
70  叢倉喪壮奏爽宋層匝惣想捜掃挿掻
80  操早曹巣槍槽漕燥争痩相窓糟総綜聡
90  草荘葬蒼藻装走送遭鎗霜騒像増憎臓
A0  蔵贈造促側則即息捉束測足速俗属賊
B0  族続卒袖其揃存孫尊損村遜他多太汰
C0  詫唾堕妥惰打柁舵楕陀駄騨体堆対耐
D0  岱帯待怠態戴替泰滞胎腿苔袋貸退逮
E0  隊黛鯛代台大第醍題鷹滝瀧卓啄宅托
F0  択拓沢濯琢託鐸濁諾茸凧蛸只
```

Code page 932-92

```
40  叩但達辰奪脱巽竪辿棚谷狸鱈樽誰丹
50  単嘆坦担探旦歎淡湛炭短端箪綻耽胆
60  蛋誕鍛団壇弾断暖檀段男談値知地弛
70  恥智池痴稚置致蜘遅馳築畜竹筑蓄
80  逐秩窒茶嫡着中仲宙忠抽昼柱注虫衷
90  註酎鋳駐樗瀦猪苧著貯丁兆凋喋寵帖
A0  帳庁弔張彫徴懲挑暢朝潮牒町眺聴脹
B0  腸蝶諜超跳銚長頂鳥勅捗直朕沈珍
C0  賃鎮陳津墜椎槌追鎚痛通塚栂掴槻佃
D0  漬柘辻蔦綴鍔椿潰坪壷嬬紬爪吊釣鶴
E0  亭低停偵剃貞呈堤定帝底庭廷弟悌抵
F0  挺提梯汀碇禎程締艇訂諦蹄逓
```

Code page 932-93

```
40  邸鄭釘鼎泥摘擢敵滴的笛適鏑溺哲徹
50  撤轍迭鉄典填天展店添纏甜貼転顛点
60  伝殿澱田電兎吐堵塗妬屠徒斗杜渡登
70  菟賭途都鍍砥砺努度土奴怒倒党冬
80  凍刀唐塔塘套宕嶋悼投搭東桃梼棟
90  盗淘湯涛灯燈当痘祷等答筒糖統到董
A0  蕩藤討謄豆踏逃透鐙陶頭騰闘働動同
B0  堂導憧撞洞瞳童胴萄道銅峠鴇匿得徳
C0  涜特督禿篤毒独読栃橡凸突椴届鳶苫
D0  寅酉瀞噸屯惇敦沌豚遁頓呑曇鈍奈那
E0  内乍凪薙謎灘捺鍋楢馴縄畷南楠軟難
F0  汝二尼弐迩匂賑肉虹廿日乳入
```

Code page 932-94

```
40  如尿韮任妊忍認濡禰祢寧葱猫熱年念
50  捻撚燃粘乃廼之埜嚢悩濃納能脳膿農
60  覗蚤巴把播覇杷波派琶破婆罵芭馬俳
70  廃拝排敗杯盃牌背肺輩配倍培媒梅
80  楳煤狽買売賠陪這蝿秤矧萩伯剥博拍
90  柏泊白箔粕舶薄迫曝漠爆縛莫駁麦函
A0  箱硲箸肇筈櫨幡肌畑畠八鉢溌発醗髪
B0  伐罰抜筏閥鳩噺塙蛤隼伴判半反叛帆
C0  搬斑板氾汎版犯班畔繁般藩販範釆煩
D0  頒飯挽晩番盤磐蕃蛮匪卑否妃庇彼悲
E0  扉批披斐比泌疲皮碑秘緋罷肥被誹費
F0  避非飛樋簸備尾微枇毘琵眉美
```

Code page 932-95

```
40  鼻柊稗匹疋髭彦膝菱肘弼必畢筆逼桧
50  姫媛紐百謬俵彪標氷漂瓢票表評豹廟
60  描病秒苗錨鋲蒜蛭鰭品彬斌浜瀕貧賓
70  頻敏瓶不付埠夫婦富冨布府怖扶敷
80  斧普浮父符腐膚芙譜負賦赴阜附侮撫
90  武舞葡蕪部封楓風葺蕗伏副復幅服福
A0  腹複覆淵弗払沸仏物鮒分吻噴墳憤扮
B0  焚奮粉糞紛雰文聞丙併兵塀幣平弊柄
C0  並蔽閉陛米頁僻壁癖碧別瞥蔑箆偏変
D0  片篇編辺返遍便勉娩弁鞭保舗鋪圃捕
E0  歩甫補輔穂募墓慕戊暮母簿菩倣俸包
F0  呆報奉宝峰峯崩庖抱捧放方朋
```

Code Page 932 (Cont)

Code page 932-96

| | |
|---|---|
| 40 | 法泡烹砲縫胞芳萌蓬蟬菱訪豐邦鋒飽 |
| 50 | 鳳鵬乏亡傍剖坊妨帽忘忙房暴望某棒 |
| 60 | 冒紡肪膨謀貌貿鉾防吠頬北僕卜墨撲 |
| 70 | 朴牧睦穆釦勃没殆堀幌奔本翻凡盆 |
| 80 | 摩磨魔麻埋妹昧枚毎哩槙幕膜枕鮪柾 |
| 90 | 鱒桝亦俣又抹末沫迄侭繭麿万慢満漫 |
| A0 | 蔓味未魅巳箕岬密蜜湊蓑稔脈妙粍民 |
| B0 | 眠務夢無牟矛霧鵡椋婿娘冥名命明盟 |
| C0 | 迷銘鳴姪牝滅免棉綿緬面麺摸模茂妄 |
| D0 | 孟毛猛盲網耗蒙儲木黙目杢勿餅尤戻 |
| E0 | 籾貰問悶紋門匁也冶夜爺耶野弥矢厄 |
| F0 | 役約薬訳躍靖柳薮鑓愉愈油癒 |

Code page 932-97

| | |
|---|---|
| 40 | 諭輸唯佑優勇友宥幽悠憂揖有柚湧涌 |
| 50 | 猶猷由祐裕誘遊邑郵雄融夕予余与誉 |
| 60 | 輿預傭幼妖容庸揚揺擁曜楊様洋溶熔 |
| 70 | 用窯羊耀葉蓉要謡踊遥陽養慾抑欲 |
| 80 | 沃浴翌翼淀羅螺裸来莱頼雷洛絡落酪 |
| 90 | 乱卵嵐欄濫藍蘭覧利吏履李梨理璃痢 |
| A0 | 裏裡里離陸律率立葎掠略劉流溜琉留 |
| B0 | 硫粒隆竜龍侶慮旅虜了亮僚両凌寮料 |
| C0 | 梁涼猟療瞭稜糧良諒遼量陵領力緑倫 |
| D0 | 厘林淋燐琳臨輪隣鱗麟瑠塁涙累類令 |
| E0 | 伶例冷励嶺怜玲礼苓鈴隷零霊麗齢暦 |
| F0 | 歴列劣烈裂廉恋憐漣煉簾練聯 |

Code page 932-98

| | |
|---|---|
| 40 | 蓮連錬呂魯櫓炉賂路露労婁廊弄朗楼 |
| 50 | 榔浪漏牢狼篭老聾蝋郎六麓禄肋録論 |
| 60 | 倭和話歪賄脇惑枠鷲亙亘鰐詫藁蕨椀 |
| 70 | 湾碗腕 |
| 80 | |
| 90 | 弌 |
| A0 | 丐丕个丱丶丼丿乂乖乘亂亅豫亊舒弍 |
| B0 | 于亞亟亠亢亰亳亶从仍仄仆仂仗仞仭 |
| C0 | 仟价伉佚估佛佝佗佇佶侈侏侘佻佩佰 |
| D0 | 侑佯來侖儘俔俟俎俘俛俑俚俐俤俥倚 |
| E0 | 倨倔倪倥倅伜俶倡倩倬俾俯們倆偃假 |
| F0 | 會偕偐偈做偖偬偸傀傚傅傴傲 |

Code page 932-99

| | |
|---|---|
| 40 | 僉僊傳僂僖僞僥僭僣僮價僵儉儁儂儖 |
| 50 | 儕儔儚儡儺儷儼儻儿兀兒兌兔兢竸兩 |
| 60 | 兪兮冀冂囘册冉冏冑冓冕冖冤冦冢冩 |
| 70 | 冪冫决冱冲冰况冽凅凉凛几處凩凭 |
| 80 | 凰凵凾刄刋刔刎刧刪刮刳刹剏剄剋剌 |
| 90 | 剞剔剪剴剩剞剿剽劍劔劒剱劈劑辨辧 |
| A0 | 劬劭劼劵勁勍勗勞勣勦飭勠勳勵勸勹 |
| B0 | 匆匈甸匍匐匏匕匚匣匯匱匳匸區卆卅 |
| C0 | 丗卉卍凖卞卩卮夘卻卷厂厖厠厦厥厮 |
| D0 | 厰厶參簒雙叟曼燮叮叨叭叺吁吽呀听 |
| E0 | 吭吼吮吶吩吶吝呎咏呵咎呟呱呷呰咒呻 |
| F0 | 咀呶咄咐咆哇咢咸咥咬哄哈咨 |

Code page 932-9A

| | |
|---|---|
| 40 | 咫哂咤咾咼哘哥哦唏唔哽哮哭哺哢唳 |
| 50 | 唸唳啝喙喀咯喊喟啻啾喘唷喞單啼喃 |
| 60 | 喇喨嗚嗅嗟嗄嗜嗤嗔嘔嗷嘖嗾嗽嘛嗹 |
| 70 | 噴嗿噂噌噫噤嘯噬噪嚆嚀嚊嚠嚔嚏嚥 |
| 80 | 嚮嚶嚴囂嚼囁囃囀囈囎囑囓囗囮囹圀 |
| 90 | 囿圄圉圈國圍圓團圖嗇圜圦圷圸坎圻址坏坩垜 |
| A0 | 圈圍圓圜圦圷圸坎圻址坏坩垜圉 |
| B0 | 坥坰坏垉垓垠垳垤垪垰埃埆埔埒埓堊 |
| C0 | 埖埣堋堙堝塲堡塢塋塰毀塒堽塹墅墹 |
| D0 | 墟墥墲墰墸墹壅壓壔壑壗壙壘壥壜壤 |
| E0 | 壟壯壺壹壻壼壽夂夊夐夛梦夥夬夭夲夸 |
| F0 | 夾竒奕奐奎奚奘奢奠奧奬奩 |

Code page 932-9B

| | |
|---|---|
| 40 | 奸妁妝佞侫妣妲姆姨姜妍姙姚娥娟娑 |
| 50 | 娜娉娚婀婬婉娵娶婢婪媚媼媾嫋嫂媽 |
| 60 | 嫣嫗嫦嫩嫖嫺嫻嬌嬋嬖嬲嫐嬪嬶嬾孃 |
| 70 | 孅孀子孕孚孛孥孩孰孳孵學斈孺宀 |
| 80 | 它宦宸寃寇寉寔寐寤實寢寞寥寫寰寶 |
| 90 | 寳尅將專對尓尠尢尨尸尹屁屆屎屓屐 |
| A0 | 屏孱屬屮乢屶屹岌岑岔妛岫岻岶岼岷 |
| B0 | 峋峅峇峙峩峽峺峭嶌峪崋崕崗嵜崟崛 |
| C0 | 崑崔崢崚崙崘嵌嵒嵎嵋嵬嵳嵶嶇嶄嶂 |
| D0 | 嶢嶝嶬嶮嶽嶐嶷嶼巉巍巓巒巖巛巫已 |
| E0 | 巵帋帚帙帑帛帶帷幄幃幀幎幗幔幟幢 |
| F0 | 幤幇幵并幺麼广庠廁廂廈廐廏 |

Code Page 932 (Cont)



Code page 932-9C

| 40 | 廖廣廚廚廛廢廚廡廬龐廳廰廳廴廸廾 |
| 50 | 弃弉彝彜弋弑弖弩弭弸彁彈彌彎彑彖 |
| 60 | 彗彙彡彭彳彷徃徂彿徊很徑徇從徙 |
| 70 | 徘徠徨徭徼忖忻忤忸忱忝悳忿怡恠 |
| 80 | 怙怐怩怎怱怛怕怫怦快忰恚恁恪恤恂 |
| 90 | 怺恚恫恙悁恊恍恣恃恤恂恟恨悍悃悚 |
| A0 | 悄悛悖悗悁悤悁悸悤悴惆惆惨惆 |
| B0 | 惘惴惺惆愀惶惷惻惱惱惷愎愍愆 |
| C0 | 愷愾愍愃愧愫慊愼惺慷惻憯慘憇懵 |
| D0 | 慄慘慝惷惻慂慵愜愨憬憔憚憊憖憊 |
| E0 | 憮憊憐憫憬懊懆憺懲懍懴懷懷懈懶 |
| F0 | 憊懷懃懍懤懴戀戈戉戍戌戔戛 |

Code page 932-9D

| 40 | 戞戡截戮戰戲戳扁扎扞扣扛扠扨扼扮 |
| 50 | 抉找抒抓抖拔抃抔拗抭抻拏拿拆攞拈 |
| 60 | 拜拌拊拂拇拋拉搾拮拱拽挌挈拯拵捐 |
| 70 | 挾捍搜捏搦揣掀揤揄揶掉掟捫捫 |
| 80 | 捩掾揩揀揆揣摸揷揶搖搴搆搓搦搶 |
| 90 | 攝搗搶搏摧摯搏摺攪撕撓撥撩撈摠據 |
| A0 | 擒擅擇撻擘擂擱擧擘擠擡搗擯擬擶 |
| B0 | 擴擶擶擧擽擴擶擺擘擲攴攵攷收攸 |
| C0 | 攷效敖敕敍敍敝敝敲敕敍艶變斛斟斫 |
| D0 | 斷旃旆旁旌旒旗旛旙无旡旱杲昊昃晏 |
| E0 | 査昵昶昴易曇晄晉晁晞晝晤晧晨晟晢 |
| F0 | 晰暃暨暝暉暄暘暝暨暹曉暾暼 |

Code page 932-9E

| 40 | 曄暸曖曚曠昿曦曩曰曵曷朏朖朞朦朧 |
| 50 | 霸朮束朶杁朸朷杆杞杠枌杤杰枏枌枩 |
| 60 | 杼杪枌枋枦枡枅枷柯枴枾枹枃枺柞 |
| 70 | 柝柢柮柸柮柆柧桙柧桙枴桍桻桍桙 |
| 80 | 梳栩桙档桴桿梟桴梭栖條梛桍榑栫桴 |
| 90 | 梵椏棊栢桙裙梺槙梕榦梍楜梍棍槝 |
| A0 | 棲棕樓椒棣棠棟棹棠棆棏椚榠梁 |
| B0 | 椶楷棡楸楯楔棉楮椹梘椽梿椰楡楞 |
| C0 | 椣楱楪椨榮槐橙槁槙槽槎椾槊橢槃 |
| D0 | 椻椻槫椻榕槢槢椚樂槾槿椚椚椣椹椹 |
| E0 | 椶椣椹椵椂椣楢椫椆樣檋橄槇橦橦楢 |
| F0 | 櫹楕橙檀橖樸橋橩槃橄橏橍 |

Code page 932-9F

| 40 | 檗檪檻檷橊檸檳檬橖橖橆橖橖橖橖橖 |
| 50 | 橊橨檠橖欟欟欵欵欷欷欷欷欷欷欷欷 |
| 60 | 歓欷歔歡歸歹歾歼歾歿殀殘殕殞殤殲 |
| 70 | 殫殯殱殲殳殷殺殼毋毓毟毟毦毦毬 |
| 80 | 麈甆氓气氛氤氣汞汕汢汪沂洹沚沁沛 |
| 90 | 汾汨汳沒沐泄決泓沽泗洄泝沮沱沾泗 |
| A0 | 泛泯泙泪溂泝洵洫洽洸洙洵洳洒洌洴 |
| B0 | 涓浤浚浹浙涎涕濤涅淹渕淵涵淇淦潤 |
| C0 | 濤淬淞淌淨濤淅淺涼淤逵淪淮渭渾渮 |
| D0 | 渙湲湟渾渣湫渫湶湍湻湃渺湎渤滿渝 |
| E0 | 游潊溪滷滉溷滓溥溯滄溲滔滕溏溥滂 |
| F0 | 溟潁溉灌溷溸溠溊滲漱滯漲滌 |

Code page 932-E0

| 40 | 漾漓滷澆潺滸澁溥潜潛潭潊澶潘澎 |
| 50 | 澑濂潦澳澣澡澤澹濆濘濕濙瀾濘濱 |
| 60 | 濮濛瀉潘濺瀑瀁瀏濾瀛瀚瀦瀝瀘瀟瀾 |
| 70 | 瀾瀰瀾瀾炙炒炯烱炬炸炳炮烟炷烝 |
| 80 | 烙焉烽焜焙煥熈熙煦熋煌煖煬熏爐熄 |
| 90 | 煩焠熬燗煒熾燒燉燔燎熵熚燵燈燐燹 |
| A0 | 燿爍爐爛爨爭爬爰爲爻爼爿牀牆牋牘 |
| B0 | 牴牾犂犁犇犒犖犢犧犹犲狃狆狄狎狒 |
| C0 | 狢狠狡狹狷倏猗猊猲猝猴猯猩猥猾 |
| D0 | 獏獏默獪獗獸獵獻獺珈玳珎玻珀 |
| E0 | 珥珮珞璉琅瑯琥珸珀琺瑕琿瑟瑙瑁瑜 |
| F0 | 瑩瑰瑣瑪瑤瑧璋璞璧瓊瓏瓔珱 |

Code page 932-E1

| 40 | 瓠瓣瓧瓩瓮瓲瓰瓱瓸瓷甄甃甅甌甎甍 |
| 50 | 甕甓甞甦甬甼畄畍畊畉畛畆畚畩畤畧 |
| 60 | 畫畭畸當疆疇畴疊疉疂疔疚疝疥疣痂 |
| 70 | 疳痃疵疽疽疼疱痍痊痒痙痣痞痾痿 |
| 80 | 痼瘁痰痺痲痳瘋瘍瘉瘟瘧瘠瘡瘢瘤瘴 |
| 90 | 瘰瘻癇癈癆癜癘癡癢癨癩癪癬癰癲癶 |
| A0 | 癸發皀皃皈皋皎皖皓皙皚皰皴皸皲皸 |
| B0 | 皺盂盍盖盒盞盡盥盧盪蘯盻眈眇眄眩 |
| C0 | 眤眞眥眦眛眷眸睇睚睨睫睛睥睿睾睹 |
| D0 | 瞎瞋瞑瞠瞞瞰瞶瞹瞿瞼瞽瞻矇矍矗矚 |
| E0 | 矜矣矮矼砌砒礦砠礪硅碎硴碆硼碚碌 |
| F0 | 碣碵碪碯磑磆硴碮碵磋磔碾碼磅磊磬 |

Code Page 932 (Cont)

Code page 932-E2

```
40    磧磚礦礫礬礫礪礱礰礫礵祀祠祇崇祚祕
50    祓祺祿禊禔禕禖禅禮禳禹禺秉秕秧秬
60    秡秣稈稍稘稙稾稟稱稻稾稷稬穗稗
70    稭穢穩稺穰穽窃窈窕窖窩窨窺窿竅
80    竄竅竇竈竊竍竏竕竗站竚竝竡竢竣
90    竦竭竰竱笂笏笊笆笳笘笙笞笵笨笑篋篌
A0    笄笏笋筌笑筵筥筴笧筬笯笲箝箘
B0    箍箜箚箋箒箏箙箑篋箆篋箴箜篁篩
C0    篋篝篞篔篽篪篯箷篲篡簀簇簌簍篲籬
D0    簣簅簫簣簌籔簇擔籐籏籟籟籖籔薔籬
E0    粃粍粐粤粭粢粡粡粳粲粱粮粹粽糀
F0    糅糂糘精糜模糢糯糲糴糶糺紆
```

Code page 932-E3

```
40    紂紒紓紊絅紖絾紽絇紾絆絳絏絑絎絲絨
50    絮綃絣經綉縑綏絽綏綺縈綣綵繧綽繧
60    總綱綢縣綸綬綰緝緤緞緻紗繧緘緜
70    縣綷緕縱緖繒緸縢緲縋縻縵練緬繢
80    繩緇縉緲緰繙績繚繪緬縌縟繝繝繙
90    辮繼纈縲續纏纕纓繬繊繊蠹繝缸缺罅
A0    罌罍罎罐网罕罔罘罟罠罦罨罩罧罸
B0    罵罷罸羌羔羞羝羚羣羯羲羹羮羶羸羼
C0    翅翆翊鑫翔翡翕翦翩翳翹翻耆耄耋耒耘
D0    耙耜耡耨耿耻聊聆聒聘聚聟聢聯聳聲
E0    聰聶聾聽聿肄肆肅肛肓肚肭胃肬胛胥
F0    胙胝胾胚胖脉胯胱脛脘脝脯脛
```

Code page 932-E4

```
40    隋胼脾腓腑胼腱腮腥腦腴腸膈膊膀膏
50    膠膕膣膤膧膩膰膵膾膸膽膾臀臂膺臉
60    臍臑臙臚臘臚臟臠臧臺臻臾舁舂舅與
70    舊舍舐舖舩舫舸舳舴舸艖艨艔艟艤
80    艣艪艫艫艭艱艷艸艾芍芒芫芟芻芬芥
90    苣苟苒苳莖苺苺范苻苹苞苺苺苿茮茵
A0    茴著茲菜荀茄荐荅茯茫茗荔茌莚莪薔
B0    莢莖莫莎莇莊茶莵菅蒽菁莉菓菴菫菫
C0    菎菽萃菘菴蓍蓁菠菲萍范萠菾菁蓂蔆
D0    萁萓菊蕁萪葷葫萪葭蒂葩葆蓮葯蒟
E0    萬蒝萲蒿菇蔴蔔蓴蔴蓿蕘蔕蔍薺蕚蔡
F0    蒨蓴蔗蓼蔬蔟蒂葡蓼蓗蕀蓋葷
```

Code page 932-E5

```
40    蕚蕀蔬蕷蕹蕾薀薊薨蕷薔薛薮薇薛
50    蕷薔薐藉薺薖薀薙薐藝藥薺薰薐薐蘋
60    藾蔔蘆龍蘚薐蘗庀厎虔號虧虯虬蚓蚣蚩
70    蚪蚋蚌蚶蚯蛄蚻蚰蛉蠣蚫蛔蛞蛩蚤蠶
80    蛟蛛蛤蛺蜆蜈蜀蠁蛻蜑蜉蜍蛹蜊蜴蜿
90    蜷蜻蜥蜩蟇蝠蜻蝸蝌蝎蝴蝗蝨蝮蝙蝓
A0    蝣蝪蟠螢蟆蜋蟄蟓蟖蟒蝅螫螅螳蟇
B0    蟇螻螈蟲蟠蝦螫螯螺蟪螳蟒蟶蟠蟠蟲
C0    螽蟊蠆蟣蟇蟴蚴蠅衒衙衞衢衫袁衾袞
D0    袒衻袿衲袂袗袒袮袢袍袤袰桂袱袴
E0    衍裼袤裙裝裹袿裨裄裼裾褄襷褝褙褓襞
F0    褪褸褞褥襖裹褻褶褸裨褝襠襞
```

Code page 932-E6

```
40    襦褸襤襪襯襴襷襾覃覈覊覓覘覡覩覦覯
50    覬覦覯覲觀覿覚觚觜觚觴觸訃訌訛訝
60    訌訛訝訥訶詁詛詒誥誅詭詬詢誅誂
70    誄誨誡誑誥誦誚誣諄諍諂諚諫諳諧
80    諤諱謔諠譁諢諷諞諢諛譱證諡諝謗謠
90    謨謖謗謚謨謐譁譎譖譛譛譫譖譟譟譟譟譟
A0    譬譚譫譽讀讌譾讒讓讖讙讚谺谿豁
B0    豌豎豐豕豢豬豸豺貂貉貅貊貍貎貔貘
C0    貘貶貨貪貽貲貳貳貶買貴賤賣賚賽賺
D0    賻贄贅贊贋贍贐齎贓贓贔贖赧赭赱
E0    赳趁趙趾趺跏跚跖跌跛跋跪跫跟跣
F0    跼踈踉踆踝踞踐跿踝踵踰踴蹊
```

Code page 932-E7

```
40    蹇蹉蹌蹐蹈蹙蹤蹠蹌蹣蹕蹶蹲蹼躁躇
50    躅躄躋躊躓躑躔躙躪躡躬躰軆躱躾軃
60    軆軅軈軼軛軤軒軣軾輊輅輕軔軫輓輗輟
70    輌輌輦輳輻輹輾轂轌轉轌轉轗轜轣
80    轢轣轤辜辟辣辭辯辷迚迥迢迪迯邇迴
90    逅迹迺逑逕逡逍逞逖逡逑逎逡逋逧逶
A0    逵逹迸逎逎逾遖遘遞遨遯遶遉遲遖遽
B0    邁邀邊邉邏邨邯邱邵郢郤扈郛鄂鄒鄒鄙
C0    鄲鄰酊酖酘酣酥酩酳醒醉醂醢醫醯
D0    醪醵醴醺釀釁釉釋釐釖釟釡釛釼釵釶
E0    鈞釿鈔鈬鈕鈑鉞鉗鉅鉉鈞鉈銕鈿鉋鉐
F0    衢鉄銓銛鋣鋏鋳銷鋩錏鋺鍆鋼
```

## Code Page 932 (Cont)

### Code page 932-E8

| | |
|---|---|
| 40 | 錙錢錚錣錛錝鍼鍜鍠鍼鎩鎱鎬鎭鎰 |
| 50 | 鎹鎻鏗鏖鏥鏘鏌鏜鏐鏈鏈鏍鏌鏏鏞鏢 |
| 60 | 鏎鏍鏘鐵鐵鏑鏺鏗鏑鏑鏃鏢鏑鏑鏢鏄鏥 |
| 70 | 鐵鐶鐵鐵鏗鐵鐵門閂閅閔閔閌閜開 |
| 80 | 閗閜閗閜開閝閝閌閜閜閝閝閝閝閝閜 |
| 90 | 閜閜閜閜阡阨阮阯陂陌陏陑陌陝陞陝 |
| A0 | 陟陬陲陬隍隑隝隗險隧隱隰隰隴隶隸 |
| B0 | 佳睢雋雉雍襍雑霊雕霅霄霆霈霈霈霈 |
| C0 | 霏霖霙霝霮霤霪霩霧霽霾霽霽霽霽靖靠 |
| D0 | 靤靦靨勒靭靫靬靭靮靮鞄鞋鞏鞐鞜鞜 |
| E0 | 鞨鞦鞣鞳鞴韃韄韜韋韜韮韲韵韶韵 |
| F0 | 頏頌頸頤頫頫頬頭顏顒頰顯顫 |

### Code page 932-E9

| | |
|---|---|
| 40 | 顰顱顲颪颯颱颳颶颷飄颻飆飀飩飫餃飽餒餔 |
| 50 | 餘餡餝餞餞餅餬饆饁饅饂饅饅饅饅饆 |
| 60 | 饒饌饕馗馘馥馭馮馯馹馺駈駝駘駑駛駓 |
| 70 | 駱駟駸駼騏駺騅騁騈騊騫騷駆騾驀驂 |
| 80 | 驃驕驍驛駼驟驢驤驥驩驪驢骭骲骼髀 |
| 90 | 髓髑髓髓髞髟髣髦髯髮髴髷髻髽髾髿 |
| A0 | 鬆鬋鬌鬍鬚鬞鬥鬧鬨鬪鬮鬯魆魄魃 |
| B0 | 魏魍魎魑魘魴魵魨魛魟魳魲魶魷魮鯀 |
| C0 | 鯊鯇鯒鯏鯑鯒鯣鯢鯤鯥鯡鯲鯱鯰鮑鰕 |
| D0 | 鹹鰉鰓鰌鰆鰈鰒鰊鰄鰮鰛鰰鱇鱚鱛鰟 |
| E0 | 鰲鱆鰾鰥鱠鱧鱶鱸鳧鳬鳰鴉鴈鳫鳯鳲 |
| F0 | 穴鴬鷇鴣鴟鴝鴟鴝鴝鴻鴼鵁鵤鵪鵙鵟 |

### Code page 932-EA

| | |
|---|---|
| 40 | 鵲鶃鶋鵬鶤鵬鶻鶏鶪鶲鶬鶍夜鶚鶡鶚鶼鶿 |
| 50 | 鷊鶙鶸鶺鷃鷇眞鷂鶸鷙鷓鷔鷉鷕鷖鷡鷏鷚 |
| 60 | 鸛鷥鹵鹹鹽麁麀麈麋麌麒麕麑麚麝麞 |
| 70 | 麤麩麭黆黎黏黐黔黜點黝黠黥黨黯 |
| 80 | 黴黶黷黸黹黻黼黽黽鼇鼈皷鼕鼡鼬鼾齊 |
| 90 | 齔齣齟齠齡齦齧齬齪齭齮齯齰齱齲齷 |
| A0 | 槇遙瑤凜熙 |
| B0 | |
| C0 | |
| D0 | |
| E0 | |
| F0 | |

### Code page 932-ED

| | |
|---|---|
| 40 | 纊褜鍈銈蓜俉炻昱棈鋹曻彅Ⅰ仡仼伀伃 |
| 50 | 伹佖侒侊侚侔俍偀倢俿倞偆偰偂傔僴僘兊 |
| 60 | 兤冝冾凬刕劜劦勀勛匀匇匤卲厓厲叝𠮟 |
| 70 | 咜咊咩哿喆坙坥垬埈埇塦塚塝墲 |
| 80 | 塚增墲夋奓奛奝奣妤妺孖寀甯寘寬尞 |
| 90 | 岦岺峵崧嵓崑崗崘崟崯岴岹弡弴彧德忞 |
| A0 | 恝悅悊惞惕愠惲愑愷愰憘戓抦揵摠撝擎 |
| B0 | 敎昀昕昻昉昮昞昤晥晗晙晴晳暠暤暰暭 |
| C0 | 暒暙暵曉曧朄朙朠枬杦枴柀栁桄栍栝桜 |
| D0 | 楁楨榉榘槢樰橩橆橳橾櫢櫤毖氿汜沆汯泚洄涇 |
| E0 | 浯涖涬淏淸淲淼渹湜渧渲渶滃滊滎滄滙 |
| F0 | 滫溰滏溲滛滹滆漊漓滿滠潍潎濆濿 |

### Code page 932-EE

| | |
|---|---|
| 40 | 狄狆狎狴狷猍狺狥猤珣珒珮珝琩珷琇琪瑄瑔瑢璿 |
| 50 | 璉環瓶畍甠畊畦畤畧甾畫畵疒疊痎痒痚痆痣痞 |
| 60 | 痾祦神祥禔福禎禛禩禴竦竮竵竨竹箆箝箘箙 |
| 70 | 綠綪綸綝羨羽翀翉翈翇翔翠翦翩翫翬翮 |
| 80 | 薫蘂蘃蘌蘏蘪蘮訕訸諆譆誩諟諶諴諟 |
| 90 | 譓賮賚赶赳軐迃逸遧郞都鄕鄯釚釗 |
| A0 | 釞釭釱釷釺釧鈇鈐鈺鈼鈸鈹鈿鉄鉜鉧 |
| B0 | 鉷鉸銶銍鋘鋑鋧鋗鋙鋐鋍鋕鋠鋓錝 |
| C0 | 錥錚錔錥錩錹鍄鍈鍒鍈鎮鎷鎹鎧鎮鎳 |
| D0 | 鏑鏾鐰鐭鐼鐵鐵鐂靑靕頋顃飯飼饛饋駲驪 |
| E0 | 髙髞粉鱸鮏髭鮫鮩鵬鶏鶏鶏黒 |
| F0 | ⅱ ⅲ ⅳ ⅴ ⅵ ⅶ ⅷ ⅸ ⅹ ┐ ┼ ▼ ▼▼ |

### Code page 932-FA

| | |
|---|---|
| 40 | ⅰ ⅱ ⅲ ⅳ ⅴ ⅵ ⅶ ⅷ ⅸ ⅹ Ⅰ Ⅱ Ⅲ Ⅳ Ⅴ Ⅵ |
| 50 | Ⅶ Ⅷ Ⅸ Ⅹ ￤ ▼ ▼▼(株)No.Tel∵ 纊褜鍈銈 |
| 60 | 蓜俉炻昱棈鋹曻彅Ⅰ仡仼伀伃伹佖侒侊侚侔俍偀 |
| 70 | 倢俿倞偆偰偂傔僴僘兊兤冝冾凬刕劜劦勀 |
| 80 | 勛匀匇匤卲厓厲叝𠮟咜咊咩哿喆坙坥垬埈埇塦 |
| 90 | 塚塝墲夋奓奛奝奣妤妺孖寀甯寘寬尞岦岺峵崧 |
| A0 | 嵓崑崗崘崟崯岴岹弡弴彧德忞恝悅悊 |
| B0 | 惞惕愠惲愑愷愰憘戓抦揵摠撝擎敎昀昕 |
| C0 | 昻昉昮昞昤晥晗晙晴晳暠暤暰暭暒暙暵曉曧朄昕 |
| D0 | 昻昉昮昞昤晥晗晙晴晳暠暤暰暭暒暙暵曉曧朄朙朠枬 |
| E0 | 朗杦枴柀栁桄栍栝桜楁楨榉榘槢樰橩橆橳橾櫢櫤毖氿汜沆汯泚洄涇浯 |
| F0 | 橰橾櫢櫤毖氿汜沆汯泚洄涇浯 |

## Code Page 932 (Cont)

Code page 932-FB

```
40  泣淬渓清涎淼濁湜渧渼湴澈漸濵瀅瀆
50  瀨炅炫焏焉煜熍煇凞燁熏犱狄獏猪獷
60  珣珉玳珣肆琇珵琦琪瑁琮瑢璉璟瓶畩
70  畠皜皞皼皫皽盆睆矼砡硎砆硳礶礼神
80  祥禔福禎竝竰靖竫簪糀絎契絟綠緒繪
90  罐羨羽茁莇菇菙菀菷萟蕙薑薀薰蕗
A0  蛀蝪蛃訒訷誮誯諲誸諳諴諐賭頼賢
B0  赶赳軏迣逸遑郎都鄕鄧釚釗釚釭釚釤
C0  釥鉿鈴鈶鈺鉀鉎鉎鉌鉑鈹鋼鉶鉄鉸鈬
D0  鋦鋙鋐鋅誌鈥釗鍚錡鑿鑄錞銷鋐錂鋑
E0  鏥鈬鎮鑪鎙銳鏻鋼間隆隖隖隖隝隞
F0  靁鞻靑靦顕顥飯飼餧館辭驣高
```

Code page 932-FC

```
40  髙髀鬚魪鮏鮱鮻鮻鯷鵬卓鳥寉鵤鵺黑
50
60
70
80
90
A0
B0
C0
D0
E0
F0
```

## Code Page 936 Simple Chinese

A140 - A1FF

```
40
50
60
70
80
90
A0        ` ˚   · ‾ ˇ ¨ 〃 々 — 〜 ‖ … ‘ ’
B0   " "  ( ) 〈 〉 《 》 「 」 『 』 【 】 〔 〕
C0   ± × ÷ : ∧ ∨ ∑ ∏ ∪ ∩ ∈ : : √ ⊥ ∥ ∠
D0   ⌒ ⊙ ∫ ∮ ≡ ≌ ≈ ∽ ∝ ≠ ≮ ≯ ≤ ≥ ∞ ∵
E0   ∴ ♂ ♀ ° ′ ″ ℃ $ ¤ ¢ £ ‰ § № ☆ ★
F0   ○ ● ◎ ◇ ◆ □ ■ △ ▲ ※ → ← ↑ ↓ ▬
```

A240 - A2FF

```
40
50
60
70
80
90
A0        ⅰ ⅱ ⅲ ⅳ ⅴ ⅵ ⅶ ⅷ ⅸ ⅹ
B0       1. 2. 3. 4. 5. 6. 7. 8. 9. 10. 11. 12. 13. 14. 15.
C0   16. 17. 18. 19. 20. (1)(2)(3)(4)(5)(6)(7)(8)(9)(10)(11)
D0   (12)(13)(14)(15)(16)(17)(18)(19)(20) ① ② ③ ④ ⑤ ⑥ ⑦
E0   ⑧ ⑨ ⑩     ㈠ ㈡ ㈢ ㈣ ㈤ ㈥ ㈦ ㈧ ㈨ ㈩
F0   Ⅰ Ⅱ Ⅲ Ⅳ Ⅴ Ⅵ Ⅶ Ⅷ Ⅸ Ⅹ Ⅺ Ⅻ
```

A340 - A3FF

```
40
50
60
70
80
90
A0     ！ ＂ ＃ ￥ ％ ＆ ＇ （ ） ＊ ＋ ， － ． ／
B0   ０ １ ２ ３ ４ ５ ６ ７ ８ ９ ： ； ＜ ＝ ＞ ？
C0   ＠ Ａ Ｂ Ｃ Ｄ Ｅ Ｆ Ｇ Ｈ Ｉ Ｊ Ｋ Ｌ Ｍ Ｎ Ｏ
D0   Ｐ Ｑ Ｒ Ｓ Ｔ Ｕ Ｖ Ｗ Ｘ Ｙ Ｚ ［ ＼ ］ ＾ ＿
E0   ｀ ａ ｂ ｃ ｄ ｅ ｆ ｇ ｈ ｉ ｊ ｋ ｌ ｍ ｎ ｏ
F0   ｐ ｑ ｒ ｓ ｔ ｕ ｖ ｗ ｘ ｙ ｚ ｛ ｜ ｝ ￣
```

A440 - A4FF

```
40
50
60
70
80
90
A0     あ あ い い う う え え お お か が き ぎ く
B0   ぐ け げ こ ご さ ざ し じ す ず せ ぜ そ ぞ た
C0   だ ち ぢ っ つ づ て で と ど な に ぬ ね の は
D0   ば ぱ ひ び ぴ ふ ぶ ぷ へ べ ぺ ほ ぼ ぽ ま み
E0   む め も ゃ や ゅ ゆ ょ よ ら り る れ ろ ゎ わ
F0   ゐ ゑ を ん
```

A540 - A5FF

```
40
50
60
70
80
90
A0     ァ ア ィ イ ゥ ウ ェ エ ォ オ カ ガ キ ギ ク
B0   グ ケ ゲ コ ゴ サ ザ シ ジ ス ズ セ ゼ ソ ゾ タ
C0   ダ チ ヂ ッ ツ ヅ テ デ ト ド ナ ニ ヌ ネ ノ ハ
D0   バ パ ヒ ビ ピ フ ブ プ ヘ ベ ペ ホ ボ ポ マ ミ
E0   ム メ モ ャ ヤ ュ ユ ョ ヨ ラ リ ル レ ロ ヮ ワ
F0   ヰ ヱ ヲ ン ヴ ヵ ヶ
```

A640 - A6FF

```
40
50
60
70
80
90
A0     Α Β Γ Δ Ε Ζ Η Θ Ι Κ Λ Μ Ν Ξ Ο
B0   Π Ρ Σ Τ Υ Φ Χ Ψ Ω
C0     α β γ δ ε ζ η θ ι κ λ μ ν ξ ο
D0   π ρ σ τ υ φ χ ψ ω
E0   ︵ ︶ ︷ ︸ ︿ ﹀ ︹ ︺ ︽
F0   ︾ ｜ ︳ ︴
```

A740 - A7FF

```
40
50
60
70
80
90
A0     А Б В Г Д Е Ё Ж З И Й К Л М Н
B0   О П Р С Т У Ф Х Ц Ч Ш Щ Ъ Ы Ь Э
C0   Ю Я
D0     а б в г д е ё ж з и й к л м н
E0   о п р с т у ф х ц ч ш щ ъ ы ь э
F0   ю я
```

Code Page 936 Simple Chines1e  (Cont.)

A840 - A8FF

```
40
50
60
70
80
90
A0      ō ó ǒ ò ê ế ế ề í ǐ ì ō ó ǒ
B0   ò ū ú ǔ ù ǖ ǘ ǚ ǜ ê ̍ ̄ ̂     ń ň
C0   g           ㄅ ㄆ ㄇ ㄈ ㄉ ㄊ ㄋ ㄌ ㄍ ㄎ ㄏ
D0   ㄐ ㄑ ㄒ ㄓ ㄔ ㄕ ㄖ ㄗ ㄘ ㄙ ㄚ ㄛ ㄜ ㄝ ㄞ ㄟ
E0   ㄠ ㄡ ㄢ ㄣ ㄤ ㄥ ㄦ ㄧ ㄨ ㄩ
F0
```

A940 - A9FF

```
40
50
60
70
80
90
A0            ─ │ │ ┄ ┊ ┈ ┊ ┈ ┐ ┐
B0   ┌ ┌ ┌ ┌ ┐ ┌ ┐ └ └ └ ┘ ┘ ┘
C0   ├ ├ ├ ├ ├ ├ ┤ ┤ ┤ ┤ ┤ ┤
D0   ┬ ┬ ┬ ┬ ┬ ┬ ┴ ┴ ┴ ┴ ┴ ┴
E0   ┼ ┼ ┼ ┼ ┼ ┼ ┼ ┼ ┼ ┼ ┼ ┼ ┼
F0
```

AA40 - AAFF

```
40
50
60
70
80
90
A0
B0
C0
D0
E0
F0
```

AB40 - ABFF

```
40
50
60
70
80
90
A0
B0
C0
D0
E0
F0
```

AC40 - ACFF

```
40
50
60
70
80
90
A0
B0
C0
D0
E0
F0
```

AD40 - ADFF

```
40
50
60
70
80
90
A0
B0
C0
D0
E0
F0
```

AE40 - AEFF

```
40
50
60
70
80
90
A0
B0
C0
D0
E0
F0
```

AF40 - AFFF

```
40
50
60
70
80
90
A0
B0
C0
D0
E0
F0
```

Code Page 936 Simple Chinese (Cont.)

B040 - B0FF

```
40
50
60
70
80
90
A0      啊阿埃挨哎唉哀皑癌蔼矮艾碍爱隘
B0      鞍氨安俺按暗岸胺案肮昂盎凹敖熬翱
C0      袄傲奥懊澳芭捌扒叭吧笆八疤巴拔跋
D0      靶把耙坝霸罢爸白柏百摆佰败拜稗斑
E0      班搬扳般颁板版扮拌伴瓣半办绊邦帮
F0      梆榜膀绑棒磅蚌镑傍谤苞胞包褒剥
```

B140 - B1FF

```
40
50
60
70
80
90
A0      薄雹保堡饱宝抱报暴豹鲍爆杯碑悲
B0      卑北辈背贝钡倍狈备惫焙被奔苯本笨
C0      崩绷甭泵蹦迸逼鼻比鄙笔彼碧蓖蔽毕
D0      毙毖币庇痹闭敝弊必辟壁臂避陛鞭边
E0      编贬扁便变卞辨辩辫遍标彪膘表鳖憋
F0      别瘪彬斌濒滨宾摈兵冰柄丙秉饼炳
```

B240 - B2FF

```
40
50
60
70
80
90
A0      病并玻菠播拨钵波博勃搏铂箔伯帛
B0      舶脖膊渤泊驳捕卜哺补埠不布步簿部
C0      怖擦猜裁材才财睬踩采彩菜蔡餐参蚕
D0      残惭惨灿苍舱仓沧藏操糙槽曹草厕策
E0      侧册测层蹭插叉茬茶查碴搽察岔差诧
F0      拆柴豺搀掺蝉馋谗缠铲产阐颤昌猖
```

B340 - B3FF

```
40
50
60
70
80
90
A0      场尝常长偿肠厂敞畅唱倡超抄钞朝
B0      嘲潮巢吵炒车扯撤掣彻澈郴臣辰尘晨
C0      忱沉陈趁衬撑称城橙成呈乘程惩澄诚
D0      承逞骋秤吃痴持匙池迟弛驰耻齿侈尺
E0      赤翅斥炽充冲虫崇宠抽酬畴踌稠愁筹
F0      仇绸瞅丑臭初出橱厨躇锄雏滁除楚
```

B440 - B4FF

```
40
50
60
70
80
90
A0      础储矗搐触处揣川穿椽传船喘串疮
B0      窗幢床闯创吹炊捶锤垂春椿醇唇淳纯
C0      蠢戳绰疵茨磁雌辞慈瓷词此刺赐次聪
D0      葱囱匆从丛凑粗醋簇促蹿篡窜摧崔催
E0      脆瘁粹淬翠村存寸磋撮搓措挫错搭达
F0      答瘩打大呆歹傣戴带殆代贷袋待逮
```

B540 - B5FF

```
40
50
60
70
80
90
A0      怠耽担丹单郸掸胆旦氮但惮淡诞弹
B0      蛋当挡党荡档刀捣蹈倒岛祷导到稻悼
C0      道盗德得的蹬灯登等瞪凳邓堤低滴迪
D0      敌笛狄涤翟嫡抵底地蒂第帝弟递缔颠
E0      掂滇碘点典靛垫电佃甸店惦奠淀殿碉
F0      叼雕凋刁掉吊钓调跌爹碟蝶迭谍叠
```

B640 - B6FF

```
40
50
60
70
80
90
A0      丁盯叮钉顶鼎锭定订丢东冬董懂动
B0      栋侗恫冻洞兜抖斗陡豆逗痘都督毒犊
C0      独读堵睹赌杜镀肚度渡妒端短锻段断
D0      缎堆兑队对墩吨蹲敦顿囤钝盾遁掇哆
E0      多夺垛躲朵跺舵剁惰堕蛾峨鹅俄额讹
F0      娥恶厄扼遏鄂饿恩而儿耳尔饵洱二
```

B740 - B7FF

```
40
50
60
70
80
90
A0      贰发罚筏伐乏阀法珐藩帆番翻樊矾
B0      钒繁凡烦反返范贩犯饭泛坊芳方肪房
C0      防妨仿访纺放菲非啡飞肥匪诽吠肺废
D0      沸费芬酚吩氛分纷坟焚汾粉奋份忿愤
E0      粪丰封枫蜂峰锋风疯烽逢冯缝讽奉凤
F0      佛否夫敷肤孵扶拂辐幅氟符伏俘服
```

222

Code Page 936 Simple Chinese (Cont.)

B840 - B8FF

```
40
50
60
70
80
90
A0      浮涪福袱弗甫抚辅俯釜斧脯腑府腐
B0      赴副覆赋复傅付阜父腹负富讣附妇缚
C0      咐噶嘎该改概钙盖溉干甘杆柑竿肝赶
D0      感秆敢赣冈刚钢缸肛纲岗港杠篙皋高
E0      膏羔糕搞镐稿告哥歌搁戈鸽胳疙割革
F0      葛格蛤阁隔铬个各给根跟耕更庚羹
```

B940 - B9FF

```
40
50
60
70
80
90
A0      埂耿梗工攻功恭龚供躬公宫弓巩汞
B0      拱贡共钩勾沟苟狗垢构购够辜菇咕箍
C0      估沽孤姑鼓古蛊骨谷股故顾固雇刮瓜
D0      剐寡挂褂乖拐怪棺关官冠观管馆罐惯
E0      灌贯光广逛瑰规圭硅归龟闺轨鬼诡癸
F0      桂柜跪贵刽辊滚棍锅郭国果裹过哈
```

BA40 - BAFF

```
40
50
60
70
80
90
A0      骸孩海氦亥害骇酣憨邯韩含涵寒函
B0      喊罕翰撼捍旱憾悍焊汗汉夯杭航壕嚎
C0      豪毫郝好耗号浩呵喝荷菏核禾和何合
D0      盒貉阂河涸赫褐鹤贺嘿黑痕很狠恨哼
E0      亨横衡恒轰哄烘虹鸿洪宏弘红喉侯猴
F0      吼厚候后呼乎忽瑚壶葫胡蝴狐糊湖
```

BB40 - BBFF

```
40
50
60
70
80
90
A0      弧虎唬护互沪户花哗华猾滑画划化
B0      话槐徊怀淮坏欢环桓还缓换患唤痪豢
C0      焕涣宦幻荒慌黄磺蝗簧皇凰惶煌晃幌
D0      恍谎灰挥辉徽恢蛔回毁悔慧卉惠晦贿
E0      秽会烩汇讳诲绘荤昏婚魂浑混豁活伙
F0      火获或惑霍货祸击圾基机畸稽积箕
```

BC40 - BCFF

```
40
50
60
70
80
90
A0      肌饥迹激讥鸡姬绩缉吉极棘辑籍集
B0      及急疾汲即嫉级挤几脊己蓟技冀季伎
C0      祭剂悸济寄寂计记既忌际妓继纪嘉枷
D0      夹佳家加荚颊贾甲钾假稼价架驾嫁歼
E0      监坚尖笺间煎兼肩艰奸缄茧检柬碱碱
F0      拣捡简俭剪减荐槛鉴践贱见键箭件
```

BD40 - BDFF

```
40
50
60
70
80
90
A0      健舰剑饯渐溅涧建僵姜将浆江疆蒋
B0      桨奖讲匠酱降蕉椒礁焦胶交郊浇骄娇
C0      嚼搅铰矫侥脚狡角饺缴绞剿教酵轿较
D0      叫窖揭接皆秸街阶截劫节桔杰捷睫竭
E0      洁结解姐戒藉芥界借介疥诫届巾筋斤
F0      金今津襟紧锦仅谨进靳晋禁近烬浸
```

BE40 - BEFF

```
40
50
60
70
80
90
A0      尽劲荆兢茎睛晶鲸京惊精粳经井警
B0      景颈静境敬镜径痉靖竟竞净炯窘揪究
C0      纠玖韭久灸九酒厩救旧臼舅咎就疚鞠
D0      拘狙疽居驹菊局咀矩举沮聚拒据巨具
E0      距踞锯俱句惧炬剧捐鹃娟倦眷卷绢撅
F0      攫抉掘倔爵觉决诀绝均菌钧军君峻
```

BF40 - BFFF

```
40
50
60
70
80
90
A0      俊竣浚郡骏喀咖卡咯开揩楷凯慨刊
B0      堪勘坎砍看康慷糠扛抗亢炕考拷烤靠
C0      坷苛柯棵磕颗科壳咳可渴克刻客课肯
D0      啃垦恳坑吭空恐孔控抠口扣寇枯哭窟
E0      苦酷库裤夸垮挎跨胯块筷侩快宽款匡
F0      筐狂框矿眶旷况亏盔岿窥葵奎魁傀
```

Code Page 936 Simple Chinese (Cont.)

C040 - C0FF

```
40
50
60
70
80
90
A0      馈愧溃坤昆捆困括扩廓阔垃拉喇蜡
B0   腊辣啦莱来赖蓝婪栏拦篮阑兰澜调揽
C0   览懒缆烂滥琅榔狼廊郎朗浪捞劳牢老
D0   佬姥酪烙涝勒乐雷镭蕾磊累儡垒擂肋
E0   类泪棱楞冷厘梨犁黎篱狸离漓理李里
F0   鲤礼莉荔吏栗丽厉励砾历利傈例俐
```

C140 - C1FF

```
40
50
60
70
80
90
A0      痢立粒沥隶力璃哩俩联莲连镰廉怜
B0   涟帘敛脸链恋炼练粮凉梁梁良两辆量
C0   晾亮谅撩聊僚疗燎寥辽潦了撂镣廖料
D0   列裂烈劣猎琳林磷霖临邻鳞淋凛赁吝
E0   拎玲菱零龄铃伶羚凌灵陵岭领另令溜
F0   琉榴硫馏留刘瘤流柳六龙聋咙笼窿
```

C240 - C2FF

```
40
50
60
70
80
90
A0      隆垄拢陇楼娄搂篓漏陋芦卢颅庐炉
B0   掳卤虏鲁麓碌露路赂鹿潞禄录陆戮驴
C0   吕铝侣旅履屡缕虑氯律率滤绿峦挛孪
D0   滦卵乱掠略抡轮伦仑沦纶论萝螺罗逻
E0   锣箩骡裸落洛骆络妈麻玛码蚂马骂嘛
F0   吗埋买麦卖迈脉瞒馒蛮满蔓曼慢漫
```

C340 - C3FF

```
40
50
60
70
80
90
A0      谩芒茫盲氓忙莽猫茅锚毛矛铆卯茂
B0   冒帽貌贸么玫枚梅酶霉煤没眉媒镁每
C0   美昧寐妹媚门闷们萌蒙檬盟锰猛梦孟
D0   眯醚靡糜迷谜弥米秘觅泌蜜密幂棉眠
E0   绵冕免勉娩缅面苗描瞄藐秒渺庙妙蔑
F0   灭民抿皿敏悯闽明螟鸣铭名命谬摸
```

C440 - C4FF

```
40
50
60
70
80
90
A0      摹蘑模膜磨摩魔抹末莫墨默沫漠寞
B0   陌谋牟某拇牡亩姆母墓暮幕募慕木目
C0   睦牧穆拿哪呐钠那娜纳氖乃奶耐奈南
D0   男难囊挠脑恼闹淖呢馁内嫩能妮霓倪
E0   泥尼拟你匿腻逆溺蔫拈年碾撵捻念娘
F0   酿鸟尿捏聂孽啮镊镍涅您柠狞凝宁
```

C540 - C5FF

```
40
50
60
70
80
90
A0      拧泞牛扭钮纽脓浓农弄奴努怒女暖
B0   虐疟挪懦糯诺哦欧鸥殴藕呕偶沤啪趴
C0   爬帕怕琶拍排牌徘湃派攀潘盘磐盼畔
D0   判叛乓庞旁耪胖抛咆刨炮袍跑泡呸胚
E0   培裴赔陪配佩沛喷盆砰抨烹澎彭蓬棚
F0   硼篷膨朋鹏捧碰坯砒霹批披劈琵毗
```

C640 - C6FF

```
40
50
60
70
80
90
A0      啤脾疲皮匹痞僻屁譬篇偏片骗飘漂
B0   瓢票撇瞥拼频贫品聘乒坪苹萍平凭瓶
C0   评屏坡泼颇婆破魄迫粕剖扑铺仆葡
D0   菩蒲埔朴圃普浦谱曝瀑期欺栖戚妻七
E0   凄漆柒沏其棋奇歧畦崎脐齐旗祈祁骑
F0   起岂乞企启契砌器气迄弃汽泣讫掐
```

C740 - C7FF

```
40
50
60
70
80
90
A0      恰洽牵扦钎铅千迁签仟谦乾黔钱钳
B0   前潜遣浅谴堑嵌欠歉枪呛腔羌墙蔷强
C0   抢橇锹敲悄桥瞧乔侨巧鞘撬翘峭俏窍
D0   切茄且怯窃钦侵亲秦琴勤芹擒禽寝沁
E0   青轻氢倾卿清擎晴氰情顶请庆琼穷秋
F0   丘邱球求囚酋泅趋区蛆曲躯屈驱渠
```

Code Page 936 Simple Chinese (Cont.)

C840 - C8FF

```
40
50
60
70
80
90
A0      取娶龋趣去圈颧权醛泉全痊拳犬券
B0    劝缺炔瘸却鹊榷确雀裙群然燃冉染瓤
C0    壤攘嚷让饶扰绕惹热壬仁人忍韧任认
D0    刃妊纫扔仍日戎茸蓉荣融熔溶容绒冗
E0    揉柔肉茹蠕儒孺如辱乳汝入褥软阮蕊
F0    瑞锐闰润若弱撒洒萨腮鳃塞赛三叁
```

C940 - C9FF

```
40
50
60
70
80
90
A0      伞散桑嗓丧搔骚扫嫂瑟色涩森僧莎
B0    砂杀刹沙纱傻啥煞筛晒珊苫杉山删煽
C0    衫闪陕擅赡膳善汕扇缮墒伤商赏晌上
D0    尚裳梢捎稍烧芍勺韶少哨邵绍奢赊蛇
E0    舌舍赦摄射慑涉社设砷申呻伸身深娠
F0    绅神沈审婶甚肾慎渗声生甥牲升绳
```

CA40 - CAFF

```
40
50
60
70
80
90
A0      省盛剩胜圣师失狮施湿诗尸虱十石
B0    拾时什食蚀实识史矢使屎驶始式示士
C0    世柿事拭誓逝势是嗜噬适仕侍释饰氏
D0    市恃室视试收手首守寿授售瘦兽蔬
E0    枢梳殊抒输叔舒淑疏书赎孰熟薯暑曙
F0    署蜀黍鼠属术述树束戍竖墅庶数漱
```

CB40 - CBFF

```
40
50
60
70
80
90
A0      恕刷耍摔衰甩帅栓拴霜双爽谁水睡
B0    税吮瞬顺舜说硕朔烁斯撕嘶思私司丝
C0    死肆寺嗣四伺似饲巳松耸怂颂送宋讼
D0    诵搜艘擞嗽苏酥俗素速粟僳塑溯宿诉
E0    肃酸蒜算虽隋随绥髓碎岁穗遂隧祟孙
F0    损笋蓑梭唆缩琐索锁所塌他它她塔
```

CC40 - CCFF

```
40
50
60
70
80
90
A0      獭挞蹋踏胎苔抬台泰酞太态汰坍摊
B0    贪瘫滩坛檀痰潭谭谈坦毯袒碳探叹炭
C0    汤塘搪堂棠膛唐糖倘躺淌趟烫掏涛滔
D0    绦萄桃逃淘陶讨套特藤腾疼誊梯剔踢
E0    锑提题蹄啼体替嚏惕涕剃屉天添填田
F0    甜恬舔腆挑条迢眺跳贴铁帖厅听烃
```

CD40 - CDFF

```
40
50
60
70
80
90
A0      汀廷停亭庭挺艇通桐酮瞳同铜彤童
B0    桶捅筒统痛偷投头透凸秃突图徒途涂
C0    屠土吐兔湍团推颓腿蜕褪退吞屯臀拖
D0    托脱鸵陀驮驼椭妥拓唾挖哇娃洼娃瓦
E0    袜歪外豌弯湾玩顽丸烷完碗挽晚皖惋
F0    宛婉万腕汪王亡枉网往旺望忘妄威
```

CE40 - CEFF

```
40
50
60
70
80
90
A0      巍微危韦违桅围唯惟为潍维苇萎委
B0    伟伪尾纬未蔚味畏胃喂魏位渭谓尉慰
C0    卫瘟温蚊文闻纹吻稳紊问嗡翁瓮挝蜗
D0    涡窝我斡卧握沃巫呜钨乌污诬屋无芜
E0    梧吾吴毋武五捂午舞伍侮坞戊雾晤物
F0    勿务悟误昔熙析西硒矽晰嘻吸锡牺
```

CF40 - CFFF

```
40
50
60
70
80
90
A0      稀息希悉膝夕惜熄烯溪汐犀檄袭席
B0    习媳喜铣洗系隙戏细瞎虾匣霞辖暇峡
C0    侠狭下厦夏吓掀锨先仙鲜纤咸贤衔舷
D0    闲涎弦嫌显险现献县腺馅羡宪陷限线
E0    相厢镶香箱襄湘乡翔祥详想响享项巷
F0    橡像向象萧硝霄削哮嚣销消宵淆晓
```

Code Page 936 Simple Chinese (Cont.)

D040 - D0FF

```
40
50
60
70
80
90
A0      小孝校肖啸笑效楔些歇蝎鞋协挟携
B0   邪斜胁谐写械卸蟹懈泄泻谢屑薪芯锌
C0   欣辛新忻心信衅星腥猩惺兴刑型形邢
D0   行醒幸杏性姓兄凶胸匈汹雄熊休修羞
E0   朽嗅锈秀袖绣墟戌需虚嘘须徐许蓄酗
F0   叙旭序畜恤絮婿绪续轩喧宣悬旋玄
```

D140 - D1FF

```
40
50
60
70
80
90
A0      选癣眩绚靴薛学穴雪血勋熏循旬询
B0   寻驯巡殉汛训讯逊迅压押鸦鸭呀丫芽
C0   牙蚜崖衙涯雅哑亚讶焉咽阉烟淹盐严
D0   研蜒岩延言颜阎炎沿奄掩眼衍演艳堰
E0   燕厌砚雁唁彦焰宴谚验殃央鸯秧杨扬
F0   佯疡羊洋阳氧仰痒养样漾邀腰妖瑶
```

D240 - D2FF

```
40
50
60
70
80
90
A0      摇尧遥窑谣姚咬舀药要耀椰噎耶爷
B0   野冶也页掖业叶曳腋夜液一壹医揖铱
C0   依伊衣颐夷遗移仪胰疑沂宜姨彝椅蚁
D0   倚已乙矣以艺抑易邑屹亿役臆逸肆疫
E0   亦裔意毅忆义益溢诣议谊译异翼翌绎
F0   茵荫因殷音阴姻吟银淫寅饮尹引隐
```

D340 - D3FF

```
40
50
60
70
80
90
A0      印英樱婴鹰应缨莹萤营荧蝇迎赢盈
B0   影颖硬映哟拥佣臃痈庸雍踊蛹咏泳涌
C0   永恿勇用幽优悠忧尤由邮铀犹油游酉
D0   有友右佑釉诱又幼迂淤于盂榆虞愚舆
E0   余俞逾鱼愉渝渔隅予娱雨与屿禹宇语
F0   羽玉域芋郁吁遇喻峪御愈欲狱育誉
```

D440 - D4FF

```
40
50
60
70
80
90
A0      浴寓裕预豫驭鸳渊冤元垣袁原援辕
B0   园员圆猿源缘远苑愿怨院曰约越跃钥
C0   岳粤月悦阅耘云郧匀陨允运蕴酝晕韵
D0   孕匝砸杂栽哉灾宰载再在咱攒暂赞赃
E0   脏葬遭糟凿藻枣早澡蚤躁噪造皂灶燥
F0   责择则泽贼怎增憎曾赠扎喳渣札轧
```

D540 - D5FF

```
40
50
60
70
80
90
A0      铡闸眨栅榨咋乍炸诈摘斋宅窄债寨
B0   瞻毡詹粘沾盏斩辗崭展蘸栈占战站湛
C0   绽樟章彰漳张掌涨杖丈帐账仗胀瘴障
D0   招昭找沼赵照罩兆肇召遮折哲蛰辙者
E0   锗蔗这浙珍斟真甄砧臻贞针侦枕疹诊
F0   震振镇阵蒸挣睁征狰争怔整拯正政
```

D640 - D6FF

```
40
50
60
70
80
90
A0      帧症郑证芝枝支吱蜘知肢脂汁之织
B0   职直植殖执值侄址指止趾只旨纸志挚
C0   掷至致置帜峙制智秩稚质炙痔滞治窒
D0   中盅忠钟衷终种肿重仲众舟周州洲诌
E0   粥轴肘帚咒皱宙昼骤珠株蛛朱猪诸诛
F0   逐竹烛煮拄瞩嘱主著柱助蛀贮铸筑
```

D740 - D7FF

```
40
50
60
70
80
90
A0      住注祝驻抓爪拽专砖转撰赚篆桩庄
B0   装妆撞壮状椎锥追赘坠缀谆准捉拙卓
C0   桌琢茁酌啄着灼浊兹咨资姿滋淄孜紫
D0   仔籽滓子自渍字鬃棕踪宗综总纵邹走
E0   奏揍租足卒族祖诅阻组钻纂嘴醉最罪
F0   尊遵昨左佐柞做作坐座
```

Code Page 936 Simple Chinese (Cont.)

| D840 - D8FF | | DC40 - DCFF | |
|---|---|---|---|
| 40 | | 40 | |
| 50 | | 50 | |
| 60 | | 60 | |
| 70 | | 70 | |
| 80 | | 80 | |
| 90 | | 90 | |
| A0 | 亍丌兀丐廿卅丕亘丞鬲孬噩丨禺丿 | A0 | 塴堠堭堶堀堞堙塄塅塈塊塈塅墚墀 |
| B0 | 匕乇夭爻卮氐囟胤馗毓睾鼗丶亟鼐乜 | B0 | 馨鼙懿艹芍芄芨茼艿芎芑芗芙芫芸 |
| C0 | 乩亓芈孛啻嘏仄厍厝厣厥厮靥赝匚叵 | C0 | 芾苈苣苋芪芄苠苕芡芟苄苎芤苡茉 |
| D0 | 匦匮匾赜卦卣刂刈刎刭刳刿剀剌剞 | D0 | 苄苤苊苠莱茛荭芨苜茬苒苘茌苻苓 |
| E0 | 剡剜蒯剟剽劂劁劐劓冂罔亻仃仉仂 | E0 | 茼茚茆荃茕茛苘茜荑荛莅荦苕萱茶 |
| F0 | 仨仜仩仡仝仞伛仳伢佤仵伥伧伉仔佃 | F0 | 荏荇苺荃荟荀茗荠茭芡芫茳荜荦 |

| D940 - D9FF | | DD40 - DDFF | |
|---|---|---|---|
| 40 | | 40 | |
| 50 | | 50 | |
| 60 | | 60 | |
| 70 | | 70 | |
| 80 | | 80 | |
| 90 | | 90 | |
| A0 | 佟佗伲伽佶佴侑侉侃侏佾佻侪佹侬 | A0 | 荨茛荩芺荪荭荮莸莳莶莠莩莪莭莰莸 |
| B0 | 侔俦俨俪俅俚俣俦俜俑俟俸倩偌俳倬倏 | B0 | 莶荼莛莩萋菝菥莃莝莄菪莱菔菁莦 |
| C0 | 俣倮偆偰偡偂傀偶偁偛偟偋偟偈偮 | C0 | 菘葺葑萘菰菡葜萏菊菀菽萃菘萏 |
| D0 | 傺僖傮僳僭僮僦僔仝余佘佥俎龠 | D0 | 萼葶苒萸莼萁葙葴葳葳葚菑蓑蕙 |
| E0 | 汆籴兮巽黉馘黟门闩闫闶闳圮夙兕亠 | E0 | 葶葆葩荸葺蒎葙葶蒈蒉蓠葸葆蒇蒿 |
| F0 | 亢亳衮裒裛亵亶嬴嬴嬴疒洌冽 | F0 | 蒺蒿蒡蒹蒴蒗蓥蓣蒻蒽蒴葖蓍蔺蕳 |

| DA40 - DAFF | | DE40 - DEFF | |
|---|---|---|---|
| 40 | | 40 | |
| 50 | | 50 | |
| 60 | | 60 | |
| 70 | | 70 | |
| 80 | | 80 | |
| 90 | | 90 | |
| A0 | 凇冖冢冥讠讦讧讪讴讵讷诂诃诋诏 | A0 | 蕖蔻蒨蓼蕙蓳蕨蕤蓺蕺蕃蓍蕲蕺蕹 |
| B0 | 诎诒诓诔诖诘诙诜诟诠诤诨诩诮诹诼 | B0 | 薨薇蕙薤薇薜薅薮薹薷薰薜薮薷薹薅 |
| C0 | 诶诿谀谂谄谇谌谏谑谒谔谕谖谙 | C0 | 薷藓蘼卝弈夼夽奁奕奚奘奂匏尢尥尬尴 |
| D0 | 谛谘谝谟谠谡谥谧谪谫谮谯谰谲 | D0 | 扌打扑扦抖抉扭把抻抔拶挕揶掭掭 |
| E0 | 阝阢阡阱阪阽阼陂陉陔陟陧陬陲 | E0 | 撵掎掴掸掮掅揶掼揲揸揠揿揄揞揎 |
| F0 | 陴隈隍隗隰阢邗邛邝邙邬邡邴邶邺 | F0 | 摒揆搋搞搠搡搦搡摞撄撷擤摺擼撖撤 |

| DB40 - DBFF | | DF40 - DFFF | |
|---|---|---|---|
| 40 | | 40 | |
| 50 | | 50 | |
| 60 | | 60 | |
| 70 | | 70 | |
| 80 | | 80 | |
| 90 | | 90 | |
| A0 | 邸邰郏郅邾郐郄郇郓郦郢郜郗郛郫郬郐 | A0 | 撂撙撺擐擗擤擢擢攉攥攮弋忒 | 
| B0 | 郯郾鄄鄢鄞鄣鄱鄯鄹酃酆刍奂劢劬 | B0 | 忒忑卟叱叽叩叨叻吒吖吆呋呒呓 |
| C0 | 劭劾劾劢勐勖勖勰叟燮矍廴凵凼弋犭宄 | C0 | 呔呷呃吡呚呤呖呖咔呷呱呤咚咛咄呶呦 |
| D0 | 犰犴犷犸狃狁狎狍狒狨狯狩狲狳 | D0 | 咝�咭咡咸咦咳咬咭咴咻咿哌哌 |
| E0 | 狴狷猁狳猃狺狴狷猎猞猑猗猊猸 | E0 | 哙哚哜咩咪咤哝哏哞唛哧哳哽唔唢唝 |
| F0 | 猹猥猬猸猱獐獍獗獠獬獬獬獯獾 | F0 | 唣唏唑唧唪唤唼唷唳唰唿啁啐啕 |

Code Page 936 Simple Chinese (Cont.)

E040 - E0FF

```
40
50
60
70
80
90
A0      唷唉啵啶啷唳唰唼啿啾喀
B0   啮啾嗄啮啬嗟嗖嗴啮嗪嗷嗅嘟嗑嗫嗬
C0   嗔嗷嗥嗄嗳嗌嗑嗌嗌嗍嗛啮嗻嗲
D0   嗰嗪啮啮嗼啮啮嗮嗾噔噤噫噻嚅嗿
E0   噜噌嗱嘀嗉嘍嘌噻噼嗳嚅嘡嚓口团囡
F0   囵囫囵团围囵囵圃伟帙帔帑帱帻帼
```

E140 - E1FF

```
40
50
60
70
80
90
A0      帷幄幔幛幞幡岌屺岍岐岖岈岘岙岑
B0   岚岜岵岢岽岬岫岱岣岷岸岽岿峋峤峥峄
C0   崂崃崧嵅崮崤崎崆崛崃崴崽嵬崾嵯
D0   崾嵫嵋嵊嵩嵴嶙嶝嶷嶂嶙徉彷徂徇
E0   徉後徕徙徜徨徭徵徼衢彡犭犰犴犷犸
F0   狃犹狎狍狒狨狯狩狲狴狷狳狲狲猁狷
```

E240 - E2FF

```
40
50
60
70
80
90
A0      狻猗猓猡猊猞猝猕猢猹猥猬猸猱獐
B0   獍獗獠獬獯獾舛夥飧夤饣忄饪饬饴饣饪
C0   饫饬饴饷饽饺馇馊馍馐馑馓馔馕庀
D0   庑庋庖庥庠庹庵庾庳廒廪廛廨廪廥膺
E0   忄忉忖忏忧忮忡忤忾怅怆忪忭忸怙怵
F0   怵怦怛怏作怩怫怊怿怡怹怶怵侧恺恂
```

E340 - E3FF

```
40
50
60
70
80
90
A0      恪悙悖悚悭悝悃悌悛悯悻悱悱恼惆
B0   惘惚悴愠愦惮愎愠惴惆惚惆慑懔愣
C0   憷懔槽忝赛闩闫闱闳闵闶闼闾闿阃阄
D0   阅阄阅阒阁阀阂阇阈阉阊阋爿丬戕氵
E0   汔氿汉沣沅沐沔沌汩汩汧汶沆沩泐泔
F0   沭泷泸浃泗泆泠泖泺泫泮泯泓泯泾
```

E440 - E4FF

```
40
50
60
70
80
90
A0      洎洧洫浃洮洇洄洙洎洫浍洮洵泽浏
B0   浒浔洳湅浯涞涸泫消涔浜浠涴浣渚淇
C0   淅淞浃涿淠湴淦淤淙浉湜渌涮渫湮湎
D0   湫溲湟淑溢淅渲湮渥湄滟溓溢溦溅溏
E0   溧澥涠涸滗澳溘涛溥滇溃溱溯涝淩漕滹
F0   漯潶潋潴潃瀘漩澈澍渐潸湘潼潒潄
```

E540 - E5FF

```
40
50
60
70
80
90
A0      濉澧澹澶潲濡濮澳潆涩瀚澄瀣渝瀵
B0   瀹瀸广宄宕宓宥宸寯寽寨寤寮寨寰寰
C0   寰辶迓迕迥迮逅迤迦迳迫逅逯逑迶逑
D0   逍逖逡逯逶逍逭逾遑逎逮逭逳遄遛逼
E0   遄遭邂遽邃邋彐彗蠡彘尻叺屐屙孱屣
F0   屦屦弪弩弭舭弼鬻屮灼妃妍妖妪妣
```

E640 - E6FF

```
40
50
60
70
80
90
A0      妗姊妫妞妤妣姐妯姗妾娅娆姝娈姣
B0   姘姹娌婷娲婳娑娣娓婀婧娌婕娼婢婵
C0   胬婠媛婷婺媾嫫娘嫒嫔媸媭媪嫖嫦
D0   嫘嫜嫱嫒嬖嬲嬷嬬尕奈孚孥孳孽孑孓孢
E0   驵驷骈驹驿驽骀骁骅骈骊骐骒骓骖骘
F0   骛骜骝骗骠骢骡骤骧纟纡纣纥纨纩
```

E740 - E7FF

```
40
50
60
70
80
90
A0      纭纰纾绀绁绂绉绋绌绐绔绗绛绠绡
B0   绨绫绮绯绱绲绶绾绺绻绾缁缂缃缇缈
C0   缋缌缗缙缛缜缞缟缡缢缣缤缥缦
D0   缧缨缫缬缯缱缲缳缥缵幺麽巛甾邕
E0   玎玑玮玢玟玨珂珑玷玳珀珉珈珥珙顼
F0   琊珩珧珞玺珲琏琪瑛琦琥琨琰琮琬
```

Code Page 936 Simple Chinese (Cont.)

E840 - E8FF

```
40
50
60
70
80
90
A0    琛琭琨瑜瑗瑛瑜瑗瑭瑾瑨瑭瑧瑨瑁琏
B0    璋璞璨璩璐璧瓒瓘璺魅锟辒机杓杞杈杩
C0    枥枇杪杳枘枧杆杕枞枭枋杷杼枭栝柘
D0    栊枢�栌柙枵枸枳枥栀栳柢栋柽柽
E0    栲栳桠桡桎桢桄栖桡枯栿桁桧桀桊
F0    桊桉栩梵梏桴梢梓杪棂楮棼棻梺桲
```

E940 - E9FF

```
40
50
60
70
80
90
A0    椤棰椋椁楗棣椐楼椹楠楂楝榄楣榀
B0    榘楸椴槌楱榈楷椈楦椶榛桢楫桦槠
C0    樟榱楠槊梹榕楮楣椿棹槭椿棠獔榍橄
D0    槌榢橐橛槬楢槽榫橘橡橐榕橥榘櫣
E0    歒熬殁殂殇殄殒殪殍殚殓殡殪轫轭轱
F0    轲轳轵轶轸轷轺轾辀辁辂辄辇辋辍
```

EA40 - EAFF

```
40
50
60
70
80
90
A0    辊辋辌辍辎辏戋戗戛戕戡戢戥戤戥
B0    戧斨瓴瓿甏甑甓攴旮旯旰昊昙杲昃昕
C0    昀昒曷昝昴昱昶昵昴晟晔晁晏晖晡晗
D0    晷暄暌暧暝暾曛曜曦曩贲贳赈贶赂
E0    赅赆赇赈赉赊赕赏觇觊觋觌觎觏觐觑
F0    牮犟牝牦牯牾牿犄犋犍犏犒挈挲掰
```

EB40 - EBFF

```
40
50
60
70
80
90
A0    搿擘耄毪酖毵毳毽毵氅氇氆氍氕氘氙
B0    氚氛氩氤氦氮氬氲敏敫牍牒牖爰虢刖肜
C0    肜肓肽肽肱肫肭肷肢胧胨胩胪胛胂胙
D0    胄胙胍胗脎胝胫脬胲胄胝胝脒胼胂
E0    豚脶脞脬脘腧脔脶腴腻腩膊腼腓膘
F0    腘腙腴腠腧膈膑腽膦膣膪膷膑膦膛
```

EC40 - ECFF

```
40
50
60
70
80
90
A0    臁膦胲秋欤欷欹欻歘歠炟飑飒飓飙飚殳
B0    毂毂毂斐斛旃旆旄旌旃旒旖旎炀炜
C0    炖炝炻烀炷炫炱烨烊焐焓炯焯焱煳煜
D0    煨煅煲煊煸煺熘熳焖熵熠熯燔燊熘熽
E0    燹灬煮煦熏庹庥庹庵庑讠祀礻祉祛祜
F0    祓祚祢祗祠祯祧祺禅禊禚禧禳忐忑
```

ED40 - EDFF

```
40
50
60
70
80
90
A0    忒忭忮忳忸忡忤忾怃怄忧怀怄怜恁
B0    恝韦羍杳浆淼矶矸砀耆砗砘砑砭砜砒砠
C0    砝砹砺耆砟砼砥砬砣砩硐砼硖硭砦碉
D0    硐硌硪碛碚碎碜碾碣碲碲碥碤碥礓
E0    磬碴碛碹礴碌礞碡龛常敝黹盱眄盹眇
F0    眇眈眚眢眙眭眦眵眸睐睑睇睃眷睚
```

EE40 - EEFF

```
40
50
60
70
80
90
A0    睢睥睿睽睾瞀瞑瞟瞠瞰瞵瞽町畀
B0    畎畋畈畛畲畹疃罘罡罟詈罨罴罱羁羸
C0    罂罄罅舛舡舢舣舭舯舨舫舸舻舳舴舾
D0    舿艄艉艋艏艚艟艨钅钆钇钌钬钋钊钋钒
E0    钕钗钘钙钚钛铼铉铊铋铌铍铎铏钌钸铒
F0    钿钿铗铙铛铚铟铙铍铎铤铥铧铨铪
```

EF40 - EFFF

```
40
50
60
70
80
90
A0    铼铽铒铕铥铷铯铹铼铽钲锃锂铹
B0    锇锉锊铳锎锏锒锓锔锕锖锘锚铻锒锓
C0    锢锪锫铼锬锰锱锲锴锵锶锷锸锹锻锼
D0    锇锎锇锏锖铼锑铑锒锒铠铒镁镋锏锍
E0    铩锎锝锨镆镅锇锗锘锣锛镄锇锠锒锵
F0    锣锺刳烂稚秕秭秣秫稆秸秽秾稃稂稞稔
```

F040 – F0FF

```
40
50
60
70
80
90
A0    積櫻楠黏馥穚皈皎皓晳皤腅瓠甫鸠
B0 莺鸨槝鸪鵺鸬鸰鸥鵉鸶鹁鹇鸾鹈鹍
C0 鹄鸧鹏鹌鸹鹊鹍鹋鹈鹑鹕鸷鸹鹔
D0 鹦鹉鹊鹌鹪鸶鸹鳁鸷鹘广疒疒疠疝疬
E0 疣疳疴疸痄疱痊疵痂痖痣瘆瘩痤痫
F0 痧瘃痱瘤瘘瘦瘀瘅瘌瘗瘊瘥瘘瘕瘟
```

F140 – F1FF

```
40
50
60
70
80
90
A0    瘛瘼瘢瘠瘭瘰瘻瘿瘵瘾瘳痹瘌瘼
B0 瘢癣瘿瓒翊冻岁冯竜窀穷宛窆窝窨窨
C0 窭窬衤礻衪衲衽衿衭袆袄袪袼裉裢裎裣
D0 裥裱褚裼裨褙褡褛褴褟褫褶裰
E0 褓襻疋胥靼皲矜耒耔耖耜耢耠耦耧
F0 耩耨耱耋耵聃聍聃聒聱覃顸顼顽
```

F240 – F2FF

```
40
50
60
70
80
90
A0    颉颌颍颏颔颚颟颡颢颥颦虍虔
B0 虬虮蚤虺虻蚄蚂蚋蚬蚝蚧蚣蚪蚓蛑
C0 蚶蛄蚵蛎蚰蜞蚱蚯蛉蛏蚴蚱蛴
D0 蛐蜓蛞蛟蛘蛑蜃蛸蜈蜊蜍蜉蜣蜻
E0 蜞蜥蜮蜚螺蜾蝈蜱蜩蜷蜿蝉蛹蜴蜻蜱
F0 蝠蜇蜊蝮螋蝓蝣蝼蜡螈蟒螯螭蟒
```

F340 – F3FF

```
40
50
60
70
80
90
A0    蟥螬螵蟠蟑蟓螽蟪螳蟋蟪螽蟑
B0 蟀蟊蠊蠛蟛蟪螵蟒蟮蟛螽蠡缶罂
C0 罄罅舐竺竽笈笃竿笕笊笨笈笸笪笙笮
D0 笱笤笠箐笤笳笾笤笰笔笕筵笙筝笱筮
E0 簧笕筲筱箐箦篓箐篓箱箫箅篚算箪箜箫
F0 箴箦箔箨箐箧篥篦篪箕箢笾篦箭篮
```

F440 – F4FF

```
40
50
60
70
80
90
A0    簟簪簦簸簌籀臾舁舂舄臬衄肛舡舣
B0 舭舯舨舫舸舻舳舴舶舸舡艄艚艟艨艨
C0 衾袅袈衮裟蘘瓴羟羧羯糁羰杣枚杷枥
D0 枭栖枲槃郴棕椮椳楷桫楷槤榱槲桹艮暨
E0 羿翙翕翥翡翦翩翮翳糸絷茶紫绿纛秩
F0 鞠赳趄趔趑趱赧赭豇豉酊酐酎酏酤
```

F540 – F5FF

```
40
50
60
70
80
90
A0    酢酡酰酩酯酽醄醒酴酹醌酤醐醍醋
B0 醢醯醪醭醯醢醭醴醺豕豨豗豇豒豛豝豨
C0 豹豻豺貅豿貂貊貘貔斛觖觞觚觜
D0 跖趼趺跄趾跚跣跎跏跏趼跗趹跬跶踌
E0 踵踽踱跹蹁踩蹰踪跺跻蹂蹯蹓跳踢蹰
F0 蹧蹒躜蹩豸貂貊貅貘貔斛觖觥觜觜
```

F640 – F6FF

```
40
50
60
70
80
90
A0    觥觫觯訾詧謦覻雩雳雯霆弄霈霏霙霡霭
B0 霭霰霾觇觊觎觏觌觍觋觌醒黾鼋鼍隹
C0 雔骛雎雒罾鲞鲎鲨鳌鳘鳌鋈鑫鳌鼽
D0 鲂鲅鲆鲇鲈鲊鲋鲎鲐鲑鲒鲔鲕鲛鲎
E0 鲟鲠鲡鲢鲣鲥鲦鲧鲨鲩鲫鲭鲮鲰鲱鲲
F0 鲳鲴鲵鲶鲷鲻鲺鲽鲦鳄鳅鳆鳇鳊鳌
```

F740 – F7FF

```
40
50
60
70
80
90
A0    鳌鳍鳎鳏鳐鳓鳔鳕鳗鳘鳙鳜鳝鳟鳢
B0 鲡缺鲠鲣鞁犄犋犍犏犒犗犛犟价骰骷鹕骶骺
C0 骼髁髀髅髂骸骱髅髋髌髑魇魅魃魍魉魈
D0 魇餍餮饕彭髭髻髹髻髽髭髹鬈鬏鬓鬟
E0 鬣麾靡魔麂麇麋麝麟黡黩黪黧黥黯黠
F0 黟黢黩黪黰黜黝黻黼黾鼢鼬黾鼾鼽齄
```

Code Page 936 Simple Chinese (Cont.)

| F840 - F8FF | FC40 - FCFF |
|---|---|
| 40 | 40 |
| 50 | 50 |
| 60 | 60 |
| 70 | 70 |
| 80 | 80 |
| 90 | 90 |
| A0 | A0 |
| B0 | B0 |
| C0 | C0 |
| D0 | D0 |
| E0 | E0 |
| F0 | F0 |

| F940 - F9FF | FD40 - FDFF |
|---|---|
| 40 | 40 |
| 50 | 50 |
| 60 | 60 |
| 70 | 70 |
| 80 | 80 |
| 90 | 90 |
| A0 | A0 |
| B0 | B0 |
| C0 | C0 |
| D0 | D0 |
| E0 | E0 |
| F0 | F0 |

| FA40 - FAFF | FE40 - FEFF |
|---|---|
| 40 | 40 |
| 50 | 50 |
| 60 | 60 |
| 70 | 70 |
| 80 | 80 |
| 90 | 90 |
| A0 | A0 |
| B0 | B0 |
| C0 | C0 |
| D0 | D0 |
| E0 | E0 |
| F0 | F0 |

| FB40 - FBFF | FF40 - FFFF |
|---|---|
| 40 | 40 |
| 50 | 50 |
| 60 | 60 |
| 70 | 70 |
| 80 | 80 |
| 90 | 90 |
| A0 | A0 |
| B0 | B0 |
| C0 | C0 |
| D0 | D0 |
| E0 | E0 |
| F0 | F0 |

**Code Page 949 Korean**

A140 - A1FF

```
40
50
60
70
80
90
A0
B0
C0
D0
E0
F0
```

A240 - A2FF

```
40
50
60
70
80
90
A0
B0
C0
D0
E0
F0
```

A340 - A3FF

```
40
50
60
70
80
90
A0
B0
C0
D0
E0
F0
```

A440 - A4FF

```
40
50
60
70
80
90
A0
B0
C0
D0
E0
F0
```

A540 - A5FF

```
40
50
60
70
80
90
A0
B0
C0
D0
E0
F0
```

**Code Page 949 Korean (Cont.)**

A640 - A6FF

A740 - A7FF

A840 - A8FF

A940 - A9FF

AA40 - AAFF

AB40 - ABFF

**Code Page 949 Korean (Cont.)**

AC40 - ACFF

```
40
50
60
70
80
90
A0      А Б В Г Д Е Ё Ж З И Й К Л М Н
B0    О П Р С Т У Ф Х Ц Ч Ш Щ Ъ Ы Ь Э
C0    Ю Я
D0      а б в г д е ё ж з и й к л м н
E0    о п р с т у ф х ц ч ш щ ъ ы ь э
F0    ю я
```

AD40 - ADFF

```
40
50
60
70
80
90
A0
B0
C0
D0
E0
F0
```

AE40 - AEFF

```
40
50
60
70
80
90
A0
B0
C0
D0
E0
F0
```

AF40 - AFFF

```
40
50
60
70
80
90
A0
B0
C0
D0
E0
F0
```

B040 - B0FF

```
40
50
60
70
80
90
A0   가각간갇갈갉갊감갑값갓갔강갖갗
B0   갘같갚갛개객갠갣갤갬갭갯갰갱갸갹갼걀
C0   걋걍개갠걍거걱건걷걸걺걻걽것겄검
D0   겇겈겊겋게겐겔겜겝겟겠겡겨격겪견
E0   겯결겸겹겻겼경곁계곈곌곕곗고곡곤
F0   곤곪곬곯곰곱곳공곶과곽관괄괆
```

B140 - B1FF

```
40
50
60
70
80
90
A0   괌괍괏광괘괜괠괩괬괭괴괵괸괼굄
B0   굅굇굉교굔굘굡굣구국군굳굴굵굶굻
C0   굼굽굿궁궂궈궉권궐궜궝궤궷귀귁귄
D0   궐궜궝귓규균귤그극근글긁금급긋
E0   긍긔기긱긴긷길긺김깁깃깅깆깊까깍
F0   깎깐깔깖깜깝깟깠깡깥깨깩깬깰깸
```

**Code Page 949 Korean (Cont.)**

B240 - B2FF

| 40 |
| 50 |
| 60 |
| 70 |
| 80 |
| 90 |
| A0 |
| B0 |
| C0 |
| D0 |
| E0 |
| F0 |

B340 - B3FF

| 40 |
| 50 |
| 60 |
| 70 |
| 80 |
| 90 |
| A0 |
| B0 |
| C0 |
| D0 |
| E0 |
| F0 |

B440 - B4FF

| 40 |
| 50 |
| 60 |
| 70 |
| 80 |
| 90 |
| A0 |
| B0 |
| C0 |
| D0 |
| E0 |
| F0 |

B540 - B5FF

| 40 |
| 50 |
| 60 |
| 70 |
| 80 |
| 90 |
| A0 |
| B0 |
| C0 |
| D0 |
| E0 |
| F0 |

B640 - B6FF

| 40 |
| 50 |
| 60 |
| 70 |
| 80 |
| 90 |
| A0 |
| B0 |
| C0 |
| D0 |
| E0 |
| F0 |

B740 - B7FF

| 40 |
| 50 |
| 60 |
| 70 |
| 80 |
| 90 |
| A0 |
| B0 |
| C0 |
| D0 |
| E0 |
| F0 |

## Code Page 949 Korean (Cont.)

**B840 - B8FF**

```
40
50
60
70
80
90
A0
B0
C0
D0
E0
F0
```

**B940 - B9FF**

```
40
50
60
70
80
90
A0
B0
C0
D0
E0
F0
```

**BA40 - BAFF**

```
40
50
60
70
80
90
A0
B0
C0
D0
E0
F0
```

**BB40 - BBFF**

```
40
50
60
70
80
90
A0
B0
C0
D0
E0
F0
```

**BC40 - BCFF**

```
40
50
60
70
80
90
A0
B0
C0
D0
E0
F0
```

**BD40 - BDFF**

```
40
50
60
70
80
90
A0
B0
C0
D0
E0
F0
```

**Code Page 949 Korean (Cont.)**

BE40 – BEFF

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 40 | | | | | | | | | | | | | | | | |
| 50 | | | | | | | | | | | | | | | | |
| 60 | | | | | | | | | | | | | | | | |
| 70 | | | | | | | | | | | | | | | | |
| 80 | | | | | | | | | | | | | | | | |
| 90 | | | | | | | | | | | | | | | | |
| A0 | 쉴 | 쉼 | 쉽 | 쏘 | 수 | 쑥 | 순 | 술 | 숨 | 숩 | 쉬 | 쌍 | 쑤 | 쑷 | 쑥 | 쑤 | 쓱 |
| B0 | 쉰 | 쑹 | 쓰 | 쑥 | 순 | 술 | 숩 | 숩 | 씨 | 쑨 | 쒼 | 쉴 | 쉔 | 씨 | 삭 |
| C0 | 씬 | 쉴 | 쉼 | 씹 | 씻 | 씽 | 아 | 악 | 안 | 앉 | 않 | 암 | 압 | 앗 | 았 | 앵 |
| D0 | 압 | 앗 | 았 | 압 | 앞 | 애 | 액 | 앤 | 앨 | 앰 | 앱 | 앳 | 앵 | 어 | 억 |
| E0 | 약 | 안 | 암 | 압 | 암 | 압 | 앙 | 애 | 액 | 앤 | 앨 | 압 | 억 | 얶 |
| F0 | 언 | 얹 | 얼 | 업 | 없 | 엄 | 업 | 없 | 엇 | 었 | 엉 | 엊 | 엌 | 었 |

BF40 – BFFF

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 40 | | | | | | | | | | | | | | | | |
| 50 | | | | | | | | | | | | | | | | |
| 60 | | | | | | | | | | | | | | | | |
| 70 | | | | | | | | | | | | | | | | |
| 80 | | | | | | | | | | | | | | | | |
| 90 | | | | | | | | | | | | | | | | |
| A0 | 에 | 엑 | 엔 | 엘 | 엠 | 엡 | 엣 | 엥 | 여 | 역 | 엮 | 연 | 열 | 엶 | 엷 | 엾 |
| B0 | 염 | 엽 | 엿 | 였 | 영 | 옅 | 옆 | 예 | 옌 | 옛 | 옜 | 오 | 옥 | 왹 | 완 | 옭 |
| C0 | 옴 | 오 | 알 | 압 | 왓 | 왔 | 왕 | 왜 | 왝 | 왠 | 옴 | 와 | 왁 | 왁 | 완 | 옰 |
| D0 | 옴 | 압 | 왐 | 왓 | 왔 | 왕 | 외 | 왹 | 왼 | 욀 | 욈 | 욉 | 욋 | 욍 | 요 | 욕 |
| E0 | 욈 | 욉 | 옷 | 옹 | 왹 | 왼 | 왐 | 욥 | 욧 | 용 | 우 | 욱 | 운 | 울 | 욝 |
| F0 | 욡 | 욤 | 욥 | 웁 | 웃 | 웅 | 워 | 원 | 월 | 웜 | 웝 | 웠 |

C040 – C0FF

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 40 | | | | | | | | | | | | | | | | |
| 50 | | | | | | | | | | | | | | | | |
| 60 | | | | | | | | | | | | | | | | |
| 70 | | | | | | | | | | | | | | | | |
| 80 | | | | | | | | | | | | | | | | |
| 90 | | | | | | | | | | | | | | | | |
| A0 | 웨 | 웩 | 웬 | 웰 | 웸 | 웹 | 웽 | 위 | 윅 | 윈 | 윌 | 윔 | 윗 | 윙 | 유 | 육 |
| B0 | 윤 | 율 | 윰 | 윱 | 윳 | 융 | 윷 | 유 | 육 | 윤 | 율 | 윰 | 윱 | 윗 | 잎 |
| C0 | 윱 | 유 | 의 | 읜 | 읠 | 읨 | 읩 | 으 | 윽 | 은 | 을 | 읊 | 음 | 읍 | 잇 | 인 |
| D0 | 윗 | 읍 | 임 | 입 | 잇 | 있 | 임 | 잊 | 잎 | 자 | 작 | 잔 | 잗 | 잘 | 잠 | 잽 |
| E0 | 잡 | 잣 | 잤 | 장 | 잦 | 잭 | 재 | 잰 | 잴 | 잼 | 잽 | 잿 | 쟁 | 저 | 적 | 전 |
| F0 | 자 | 작 | 잔 | 잘 | 잡 | 잠 | 장 | 재 | 잰 | 잴 | 저 | 적 | 전 |

C140 – C1FF

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 40 | | | | | | | | | | | | | | | | |
| 50 | | | | | | | | | | | | | | | | |
| 60 | | | | | | | | | | | | | | | | |
| 70 | | | | | | | | | | | | | | | | |
| 80 | | | | | | | | | | | | | | | | |
| 90 | | | | | | | | | | | | | | | | |
| A0 | 점 | 접 | 젓 | 정 | 젖 | 제 | 젝 | 젠 | 젤 | 젬 | 접 | 젯 | 젱 | 져 | 젼 | 죽 |
| B0 | 절 | 접 | 젔 | 정 | 제 | 조 | 족 | 존 | 졸 | 좀 | 좁 | 좃 | 종 | 죄 | 쥔 | 졸 |
| C0 | 졷 | 좀 | 좌 | 좍 | 좔 | 잡 | 좟 | 좡 | 좨 | 좼 | 좽 | 죄 | 쥔 | 줄 | 줌 | 집 |
| D0 | 좃 | 좀 | 죠 | 죡 | 죤 | 죵 | 주 | 죽 | 준 | 줄 | 줌 | 줍 | 줏 | 쥐 | 쥰 | 줄 |
| E0 | 쥑 | 좟 | 죄 | 쥬 | 쥑 | 쥔 | 쥡 | 집 | 쥣 | 쥰 | 쥬 | 준 | 줄 | 줍 | 줏 |
| F0 | 쥰 | 쥴 | 쥼 | 쥽 | 줏 | 쥥 | 지 | 직 | 진 | 짇 |

C240 – C2FF

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 40 | | | | | | | | | | | | | | | | |
| 50 | | | | | | | | | | | | | | | | |
| 60 | | | | | | | | | | | | | | | | |
| 70 | | | | | | | | | | | | | | | | |
| 80 | | | | | | | | | | | | | | | | |
| 90 | | | | | | | | | | | | | | | | |
| A0 | 징 | 짖 | 짙 | 짚 | 짜 | 짝 | 짠 | 짢 | 짤 | 짧 | 짬 | 짭 | 짯 | 짰 | 짱 |
| B0 | 째 | 짹 | 짼 | 쟁 | 쨈 | 쨉 | 쨋 | 쨌 | 쨍 | 쨔 | 쨘 | 쨤 | 쩌 | 쩍 | 쩐 | 쩔 |
| C0 | 쩜 | 쩝 | 쩟 | 쩠 | 쩡 | 쩌 | 쩨 | 쩌 | 쩠 | 쪼 | 쭉 | 쫀 | 쫄 | 쫌 | 쫍 | 쫏 |
| D0 | 쫑 | 쫓 | 쫙 | 쫙 | 쫠 | 쫬 | 쫴 | 쫹 | 쩍 | 쩐 | 쩔 | 쩜 | 쩝 | 쭈 | 쭉 | 쭌 |
| E0 | 쭌 | 쭐 | 쩜 | 쩝 | 쭝 | 쭹 | 쩟 | 쩡 | 쭈 | 쭉 | 쩌 | 쩝 | 쭝 | 찌 | 찍 |
| F0 | 찐 | 찔 | 찜 | 찝 | 찡 | 찢 | 찧 | 차 | 착 | 찬 | 찰 | 참 | 참 | 찻 |

C340 – C3FF

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 40 | | | | | | | | | | | | | | | | |
| 50 | | | | | | | | | | | | | | | | |
| 60 | | | | | | | | | | | | | | | | |
| 70 | | | | | | | | | | | | | | | | |
| 80 | | | | | | | | | | | | | | | | |
| 90 | | | | | | | | | | | | | | | | |
| A0 | 찼 | 창 | 찾 | 채 | 책 | 챈 | 챌 | 챔 | 챕 | 챗 | 챘 | 챙 | 차 | 찬 | 챨 |
| B0 | 찹 | 참 | 챵 | 처 | 척 | 천 | 철 | 첨 | 첩 | 첫 | 첬 | 첨 | 체 | 첵 | 첸 | 첼 |
| C0 | 쳄 | 쳅 | 쳇 | 쳉 | 처 | 쳔 | 쳣 | 체 | 쳰 | 쳉 | 초 | 촉 | 촌 | 촐 | 촘 | 촙 |
| D0 | 촛 | 총 | 촤 | 촨 | 촬 | 촹 | 최 | 촀 | 쵠 | 쵤 | 초 | 촙 | 촛 | 총 |
| E0 | 촉 | 춘 | 출 | 춤 | 춥 | 춧 | 충 | 츠 | 측 | 츤 | 츨 | 춤 | 춥 | 춥 | 췹 |
| F0 | 촛 | 촹 | 츄 | 츈 | 츌 | 춤 | 춥 | 촛 | 총 | 측 | 츤 | 춤 | 춥 | 춧 | 충 |

Code Page 949 Korean (Cont.)

C440 - C4FF

```
40
50
60
70
80
90
A0        치칙친칟칠척침칩칫칭카칵칸캄캄
B0    캅캇캉캐캭캔캘캠캡캣캤캥캬캭캄커
C0    컥컨컫컬컴컵컷컸컹케켁켄켈켐켑켓
D0    켱커컨컬컴켭컷컸켱케코콕콘콜콤콥
E0    콧콩콰콱콴콸쾀쾅쾌쾡쾨쾰쿄쿠쿡쿤
F0    쿨쿰쿱쿳쿵쿼퀀퀄퀌쾌퀭퀴퀵퀀퀼
```

C540 - C5FF

```
40
50
60
70
80
90
A0        큄큅큇큄큐큔큘큠크콕콘큘콤콤큼큼
B0    키킥킨킬킴킵킷킹타탁탄탈닭탐탑탓
C0    탔탕태택탠탤탬탭탯탰탱타탕터턱턴
D0    털텀텁텁턋텄텅테텍텐텔템텝텟텡터
E0    텬텼톄톈토톡톤톨톰톱톳통퇴톼톤톼
F0    퇴퇸톗톙토투툭툰툴툼툽툿퉁퉉퉉퇏
```

C640 - C6FF

```
40
50
60
70
80
90
A0        퉤튀틱튄튈튐튐퉁튀튕튜튠툴톡
B0    튼튿틀틂틈틉틋틩틔틘틜틤팀파팍
C0    퓀펩퓝펫퓡파판팦팝팜팡파파퍼퍽펀
D0    패팩퍤퍠펨퍼퍼퍽퍼퍼펜펠펨페펨
E0    펍펏펐펑페페페펜펠펨펩펫펭뎌퍼펀펄펌
F0    펍펐펴며메뭐멉덤펭펍펜퓰펫폭폰폴
```

C740 - C7FF

```
40
50
60
70
80
90
A0        퐈퐝퐤퐨표푠푤품풋푸푹푠퓬퓸
B0    퓜퓸풋풍퍄푸퓐퓔퓜퍼피퓐핀퓝핌핍
C0    퓝퓨프품풋피핀핍핍핏멋핌핌하핫
D0    학한합항함합핫항해핵헨행햄햇했
E0    햄햐향허헉헌헐험헙헛헝혜헌
F0    헴헵헷헹혀혁혀현헐험협핫헝험
```

C840 - C8FF

```
40
50
60
70
80
90
A0        헬헴호혹혼홀흄홈홉홋흥홓화확환
B0    활홧황홰핵핸햇혱회획횐횔횝횟횝효
C0    흔흘훔홋후훅훈훌흄홈훗굉획훤획훰
D0    힝훼훽친휄휑휴휙훤휠휨휀휏휭휴혹
E0    흄홈훗흄흐혹흔흄흔혹휴홈훗흄
F0    흄회환힅흄휠흼히획힌힐힘힛횟힘
```

C940 - C9FF

```
40
50
60
70
80
90
A0
B0
C0
D0
E0
F0
```

**Code Page 949 Korean (Cont.)**

CA40 - CAFF

```
40
50
60
70
80
90
A0      伽佳假價加可呵哥嘉嫁家暇架枷柯
B0    歌珂痂稼苛茄街袈訶賈胛軻迦駕刻却
C0    各恪殼慤珏脚覺角閣侃刊墾奸姦干幹
D0    懇揀杆柬桿澗癇看磵稈竿簡肝艮艱諫
E0    間乫喝曷渴碣竭葛褐蝎鞨勘坎堪嵌感
F0    憾戡敢柑橄減甘疳監瞰紺邯鑑鑒龕
```

CB40 - CBFF

```
40
50
60
70
80
90
A0      匣岬甲胛鉀閘剛堈姜岡崗康強彊慷
B0    江畺疆糠絳綱羌腔舡薑襁講鋼降鱇介
C0    价個凱塏愷愾慨改槪漑疥皆盖箇芥蓋
D0    薑鎧開喀客坑更粳羹醵倨去居巨拒据
E0    據擧渠炬祛距踞車遽鉅鋸乾件健巾建
F0    怰楗腱虔蹇鍵騫乞傑杰桀儉劍劒檢
```

CC40 - CCFF

```
40
50
60
70
80
90
A0      瞼鈐黔劫怯迲偈憩揭擊格檄激膈覡
B0    隔堅牽犬甄絹繭肩見譴遣鵑抉決潔結
C0    缺訣兼慊箝鉗鎌京俓倞傾儆勁勍卿
D0    坰境庚徑庼慶憬擎敬景暻更梗涇炅璟
E0    璥瓊痙硬磬竟競絅經耕耿脛莖警輕逕
F0    鏡頃頸驚鯨係啓堺契季屆悸戒桂械
```

CD40 - CDFF

```
40
50
60
70
80
90
A0      棨溪界癸磎稽系繫繼計誡谿階鷄古
B0    叩告呱固姑孤尻庫拷攷故敲暠枯槁沽
C0    痼皐睾稿羔考股膏苦苽菰藁蠱袴誥賈
D0    辜錮雇顧高鼓哭斛曲梏穀谷鵠困坤崑
E0    昆梱棍滾琨袞鯤汨滑骨供公共功孔工
F0    恐恭拱控攻珙空蚣貢鞏串寡戈果瓜
```

CE40 - CEFF

```
40
50
60
70
80
90
A0      科菓誇課跨過鍋顆廓槨藿郭串冠官
B0    寬慣棺款灌琯瓘管罐菅觀貫關館刮恝
C0    括适侊光匡壙廣曠洸矌狂珖筐胱鑛卦
D0    掛罫乖傀塊壞怪愧拐槐魁宏紘肱轟交
E0    僑咬喬嬌嶠巧攪敎校橋狡皎矯絞翹膠
F0    蕎蛟較轎郊餃驕鮫丘久九仇俱具勾
```

CF40 - CFFF

```
40
50
60
70
80
90
A0      區口句咎嘔坵垢寇嶇廐懼拘救枸柩
B0    構歐毆毬求溝灸狗玖球瞿矩究絿耉臼
C0    舊苟衢謳購軀逑邱鉤銶駒驅鳩鷗龜
D0    國局菊鞠鞫麴君窘群裙軍郡堀屈掘窟
E0    宮弓穹窮芎躬倦券勸卷圈拳捲權淃眷
F0    厥獗蕨蹶闕机櫃潰詭軌饋句鬼龜貴
```

**Code Page 949 Korean (Cont.)**

D040 - D0FF

```
40
50
60
70
80
90
A0      鬼龜叫圭奎揆槻珪硅窺竅糾葵規赳
B0  逵閨勻均畇筠麕鈞龜橘克剋劇戟棘極
C0  隙僅劤勤懃斤根槿瑾筋芹菫覲謹近饉
D0  契今妗擒昑檎琴禁禽芩衾衿襟金錦伋
E0  及急扱汲級給亘兢矜肯企伎其冀嗜器
F0  圻基埼變奇妓寄岐崎己幾忌技旗旣
```

D140 - D1FF

```
40
50
60
70
80
90
A0      朞期杞棋棄機欺氣汽沂淇玘琦琪璂
B0  璣畸磯簊綺羈肌衿祇祈祺箕紀綺綺耆羈肌
C0  記譏豈起錤鎭飢饑騎騏麒緊佶吉拮
D0  桔金喫儺喇奈娜懦懶拏拿癩羅蘿螺裸
E0  邏那樂洛烙珞落諾酪駱亂卵暖欄煖爛
F0  蘭難爛捏捺南嵐枏楠湳濫男藍襤拉
```

D240 - D2FF

```
40
50
60
70
80
90
A0      納臘蠟衲囊娘廊朗浪狼郎乃來內奈
B0  柰耐冷女年撚秊念恬拈捻寧嚀努勞奴
C0  弩怒擄櫓爐瑙盧老蘆虜路露駑魯鷺碌
D0  祿綠菉錄鹿論壟弄濃籠聾膿農惱牢磊
E0  腦賂雷尿壘屢樓淚漏累耬陋嫩訥杻紐
F0  勒肋凜凌稜綾能菱陵尼泥匿溺多茶
```

D340 - D3FF

```
40
50
60
70
80
90
A0      丹亶但單團壇彖斷旦檀段湍短端簞
B0  緞蛋袒鄲鍛撻澾獺疸達啖坍憺擔曇淡
C0  湛潭澹痰聃膽蕁薝蟫談譚錟沓畓答踏遝
D0  唐堂塘幢戇撞棠樂當糖螳黨代垈坮大對
E0  岱帶待戴擡玳臺袋貸隊黛宅德悳倒刀
F0  到圖堵塗導屠島嶋度徒悼挑掉搗桃
```

D440 - D4FF

```
40
50
60
70
80
90
A0      棹櫂淘渡滔濤燾盜睹禱稻萄覩賭跳
B0  蹈逃途道都鍍陶韜毒瀆牘犢獨督禿篤
C0  纛讀墩惇敦旽暾沌焞燉豚頓乭突仝冬
D0  凍動同憧東桐棟洞潼疼瞳童胴董銅兜
E0  斗杜枓痘竇荳讀豆逗頭屯臀芚遁遯鈍
F0  得嶝橙燈登等藤謄鄧騰喇懶拏�ラ羅
```

D540 - D5FF

```
40
50
60
70
80
90
A0      蘿螺裸邏樂洛烙珞絡落諾酪駱丹亂
B0  卵欄樂瀾懶蘭黨剌辣嵐覽攬欖濫籃纜
C0  藍襤拉臘蠟廊朗浪狼琅瑯螂郎來崍
D0  徠萊冷掠略亮倆兩凉梁樑粮粱糧良諒
E0  輛量侶儷勵呂廬慮戾旅櫚濾礪藜蠣閭
F0  驪驢麗黎力曆歷瀝礫轢靂憐戀攣漣
```

**Code Page 949 Korean (Cont.)**

D640 - D6FF

```
40
50
60
70
80
90
A0    煉璉練聊蓮輦連鍊冽列劣洌烈裂廉
B0    斂殮濂簾獵令伶囹寧岺嶺怜玲笭羚翎
C0    聆逞鈴零靈領齡例禮醴隸勞怒撈擄
D0    櫓澇潞爐盧老蘆虜路輅露魯鷺碌祿
E0    綠菉錄鹿麓論壟弄朧瀧瓏籠聾儡瀨牢
F0    磊賂賚賴雷了僚寮廖料燎療瞭聊蓼
```

D740 - D7FF

```
40
50
60
70
80
90
A0    遼闃龍暈婁屢樓淚漏瘻累縷蔞褸鏤
B0    陋劉旒柳榴流溜瀏琉瑠留瘤硫謬類六
C0    戮陸侖倫崙淪綸輪律慄栗率隆勒肋凜
D0    凌楞稜綾菱陵俚利厘吏唎履悧李梨浬
E0    狸狸理璃俐痢籬莉裏裡里釐離鯉
F0    吝潾燐璘藺躪隣鱗麟林淋琳臨霖砬
```

D840 - D8FF

```
40
50
60
70
80
90
A0    立笠粒摩瑪痲碼磨馬魔麻寞幕漠膜
B0    莫邈万卍娩巒彎慢挽晚曼滿漫灣瞞萬
C0    蔓蠻輓饅鰻唜抹末沫茉襪靺亡妄忘忙
D0    望網罔芒茫莽輞邙埋妹媒寐昧枚梅每
E0    煤罵買賣邁魅脈貊陌驀麥孟氓猛盲盟
F0    萌氓覓免冕勉棉沔眄眠綿緬面麵滅
```

D940 - D9FF

```
40
50
60
70
80
90
A0    蔑冥名命明暝椧溟皿瞑茗蓂蓂酩銘
B0    鳴袂侮冒募姆帽慕摸摹募某模母毛牟
C0    牡瑁眸矛耗芼茅謀謨貌木沐牧目睦穆
D0    鶩歿沒夢朦蒙卯墓妙廟描昴杳渺猫杪
E0    苗錨務巫憮撫无楙武母無珷畝
F0    繆舞茂蕪誣貿霧鵡墨默們刎吻問文
```

DA40 - DAFF

```
40
50
60
70
80
90
A0    汶炆紋聞蚊門雯勿沕物味媚尾嵋彌
B0    微未梶楣渼湄眉米美薇謎迷靡黴岷悶
C0    憫敏旻旼民泯玟珉緡閔密蜜謐剝博
D0    拍搏撲朴樸泊珀璞箔粕縛膊舶薄迫雹
E0    駁伴半反叛拌搬攽班槃泮潘班畔瘢盤
F0    盼磐磻礬絆般蟠返頒飯勃拔撥渤潑
```

DB40 - DBFF

```
40
50
60
70
80
90
A0    發跋醱鉢髮魃倣傍坊妨尨幇彷厖放
B0    方旁昉枋榜滂磅紡肪膀舫芳薄蚌訪謗
C0    邦防龐倍俳北培徘拜排杯湃焙盃背胚
D0    裴裵褙賠輩配陪伯佰帛柏栢白百魄幡
E0    樊煩燔蕃礬繁蕃藩飜伐筏罰閥凡帆梵
F0    氾汎泛犯範范法琺僻劈壁擘檗璧癖
```

**Code Page 949 Korean (Cont.)**

DC40 - DCFF

```
40
50
60
70
80
90
A0      碧頩閜罸便卞弁變辨辮邊別瞥襒覽
B0   丙倂兵屛幷昞昺柄棅炳瓶病乗竝鉼餠
C0   騈保堡報寶普步洑潽湺珤菩補褓譜
D0   輔伏僕匐卜宓復服福腹茯蔔複覆輹輻
E0   鰒本俸奉封峯峰捧棒烽熢琫葑蓬
F0   蜂逢鋒鳳不付俯傅剖副否咐埠夫婦
```

DD40 - DDFF

```
40
50
60
70
80
90
A0      孚孵富府復扶敷斧浮溥父符簿缶腐
B0   腑膚艀芙莩蔀蚨負賦賻赴趺部釜阜附駙
C0   鳧北分吩噴墳奔奮忿憤扮昐汾焚盆粉
D0   糞紛芬賁雰不佛弗彿拂崩朋棚硼繃鵬
E0   不備匕匪卑妃婢庇悲憊昲批斐枇比
F0   毖毗毘沸泌琵痺砒碑秕秘粃緋翡肥
```

DE40 - DEFF

```
40
50
60
70
80
90
A0      脾臂菲蜚裨誹費鄙非飛鼻嚬嬪彬
B0   斌檳殯浜濱瀕牝邠貧賓頻憑氷聘騁乍
C0   事些仕伺似使俟僿史司唆嗣四士奢娑
D0   寫寺射巳師徙思撒斜斯柶査梭死沙泗
E0   渣瀉獅砂社祀祠私篩紗絲肆舍莎蓑蛇
F0   裟詐詞謝賜赦辭邪飼駟麝削數朔索
```

DF40 - DFFF

```
40
50
60
70
80
90
A0      傘刪山散汕珊產疝算蒜酸霰澁撒殺
B0   煞薩三參杉森滲芟蔘衫插澀鈒颯上傷
C0   償商喪嘗孀尙峠常床庠廂想桑樣湘
D0   爽牀狀相祥箱翔裳觴詳象賞霜塽雙賽
E0   嗇塞穡索色牲生甥省笙墅壻嶼序庶徐
F0   恕抒捿敍暑曙書栖棲犀瑞筮絮緖署
```

EO40 - EOFF

```
40
50
60
70
80
90
A0      胥舒薯西誓逝鋤黍鼠夕奭席惜昔晳
B0   析汐淅潟石碩蓆釋錫仙僊先善嬋宣扇
C0   敾旋渲煽琁瑄璇璿癬禪線繕羨腺膳船
D0   蘚蟬詵跣選銑鐥饍鮮卨屑楔泄洩渫舌
E0   薛褻設說雪齧剡暹殲纖蟾贍閃陝攝涉
F0   燮葉城姓宬性悻成星晟猩珹盛省筬
```

E140 - E1FF

```
40
50
60
70
80
90
A0      聖聲腥誠醒世勢歲洗稅笹細說貰召
B0   嘯塑宵小少巢所掃搔昭梳沼消溯瀟炤
C0   燒甦疏疎瘙笑篠簫素紹蔬蕭蘇訴逍遡
D0   邵銷韶騷俗屬束涑粟續謖贖速孫巽損
E0   蓀遜飱率宋悚松淞訟誦送頌刷殺灑碎
F0   鎖衰釗修受嗽囚垂壽嫂守岫峀帥愁
```

**Code Page 949 Korean (Cont.)**

E240 - E2FF

```
40
50
60
70
80
90
A0        戍手授搜收敷樹殊水洙漱燧狩獸琇
B0    璲瘦睡秀穗竪粹綏綾繡蓚脩荽蒐蓚藪
C0    袖誰雖輚遂邃酬銖銹隋隧隨雖髓須首
D0    髓鬚叔塾夙孰宿淑潚熟琡璹肅菽巡徇
E0    循恂旬栒楯橓殉洵淳珣盾瞬筍純脣舜
F0    荀蓴蕣詢諄醇錞順馴戌術述鉥橜崧
```

E340 - E3FF

```
40
50
60
70
80
90
A0        嵩瑟膝蝨濕拾習褶襲丞乘僧勝升承
B0    昇繩蠅陞侍匙嘶始媤尸屎屍市弑恃施
C0    是時柿柴猜矢示翅蒔蓍視試詩諡豕豺
D0    塒塞式息拭植殖湜熄熼篒蝕諶軾食飾伸
E0    佀僊呻娠宸愼新晨燼申神紳腎臣莘薪
F0    藎蜃訊身辛辰迅失室實悉審尋心沁
```

E440 - E4FF

```
40
50
60
70
80
90
A0        沈深瀋甚芯諶什十拾雙氏亞俄兒啞
B0    娥峨我牙芽莪蛾衙訝阿雅餓鴉鵝堊岳
C0    嶽惡愕握樂渥鄂鍔顎鰐齶安岸按晏
D0    案眼雁鞍顏鮟斡謁軋閼唵岩巖庵暗癌
E0    菴闇壓押狎鴨仰央怏昻殃秧鴦厓崖埃
F0    嬡愛曖涯碍艾隘靄厄扼掖液縊腋額
```

E540 - E5FF

```
40
50
60
70
80
90
A0        櫻罌鶯鸚也倻冶夜惹揶椰爺耶若野
B0    弱掠略約若葯蒻藥躍亮佯兩凉壤孃惹
C0    揚攘敭暘梁楊樣洋瀁煬痒瘍禳穰糧羊
D0    良襄諒輛量陽養圄御於漁瘀禦語馭
E0    魚齬億憶抑檍臆偃堰彦諺孼蘖焉
F0    儼嚴奄掩淹襄業円予余勵呂女如廬
```

E640 - E6FF

```
40
50
60
70
80
90
A0        旅歟汝濾璵礖礪與艅茹輿轝閭餘驪
B0    麗黎亦力域役易曆歷疫繹譯轢逆驛嚥
C0    堧姸娟宴年延憐戀捐挺揳椽沇沿涎涓
D0    淵演漣烟然煙燃燕璉硏硯秊筵緣練
E0    繹聯衍軟輦蓮連鉛鍊鳶列劣咽悅涅烈
F0    熱裂說閱厭廉念捻染艶炎焰琰艶苒
```

E740 - E7FF

```
40
50
60
70
80
90
A0        簾閻髥鹽曄獵燁葉令囹塋寧嶺嶸影
B0    怜映暎楹榮永泳渶潁濚瀯煐營獰玲
C0    瑛瑩瓔盈穎纓羚聆英詠迎鈴鍈零霙靈
D0    領乂倪例刈叡曳汭濊猊睨穢芮藝蘂禮
E0    裔詣譽豫醴銳隸霓預五伍俉傲午吾吳
F0    嗚塢墺奧娛寤惡懊敖旿晤梧汚澳
```

**Code Page 949 Korean (Cont.)**

E840 - E8FF

```
40
50
60
70
80
90
A0    騫熬斁冀蜆誤顙蟄屢沃獄玉釭溫瑥
B0    瘟穩縕蘊兀瑤擁瓷甕蕹翁甕雍甕渦瓦
C0    窩窪臥蛙蝸訛婉完宛梡椀浣玩琬碗
D0    緩訛脘腕莞踠阮頑曰往旺枉汪王倭娃
E0    歪矮外嵬巍猥畏了僥僥凹夭妖姚寥
F0    蓼尿嶢拗搖撓擾料曜樂橈燎燿瑤療
```

E940 - E9FF

```
40
50
60
70
80
90
A0    窈窯繇繞燿腰蓼蟯要謠遙遼邀饒饒
B0    欲浴縟褥辱傭備冗勇埔墉容庸慵榕涌
C0    湧溶熔瑢用甬聳茸蓉踊鎔鏞龍于佑偶
D0    優又友右宇寓尤愚憂旴牛玗瑀盂祐禑
E0    禹紆羽芋藕虞迂遇郵釪隅雨雩勖彧旭
F0    昱楀煜稶郁頊云暈樓殞澐熉耘芸蕓
```

EA40 - EAFF

```
40
50
60
70
80
90
A0    運隕雲韻蔚鬱芎熊雄元原員圓團垣
B0    媛嫄寬怨愿援沅洹湲源爰猿瑗苑袁轅
C0    遠阮院願鴛月越鉞位偉僞危圍委威尉
D0    慰暐渭熨瑋緯胃萎葦蔿蝟衛褘諉違韋
E0    魏乳侑儒兪劉唯喩孺宥幼幽庾悠惟愈
F0    愉揄攸有杻柔柚柳楡楢油洧流游溜
```

EB40 - EBFF

```
40
50
60
70
80
90
A0    漷猶獀琉瑜由留癒硫紐維臾萸裕誘
B0    諛諭踰蹂遊逾遺酉釉鍮類六堉戮毓肉
C0    育陸倫允奫尹崙淪潤玧胤贇輪鈗閏律
D0    慄栗率聿戎瀜絨融隆垠恩殷殷闇銀隱
E0    乙吟淫蔭陰音飮揖泣邑凝應膺鷹依倚
F0    儀宜意懿擬椅毅疑矣義艤薏蟻衣誼
```

EC40 - ECFF

```
40
50
60
70
80
90
A0    醫醫二以伊利吏夷姨履已弛弆怡易
B0    李梨泥爾珥理異痍痢移罹而耳肄苡荑
C0    裏裡貽貳邇里離飴餌匿溺瀷益翊翌翼
D0    謚人仁刃印吝咽因姻寅引忍湮燐璘絪
E0    茵藺蚓認隣鱗麟一佚佾壹日溢逸
F0    鎰馹任壬妊姙恁林淋稔臨荏賃入廿
```

ED40 - EDFF

```
40
50
60
70
80
90
A0    立笠粒仍剩孕芿仔刺咨姊姿子字孜
B0    恣慈滋炙煮茨瓷疵磁紫者自茨蔗藉諮
C0    資雌作勺嚼斫昨灼炸爵綽芍酌雀鵲屛
D0    棧殘潺簒昝潛箴簪蠶雜丈仗匠場墻
E0    壯奬將帳庄張掌暲杖樟檣檣牆狀狙
F0    璋章粧腸臟臟莊葬蔣薔藏裝贓醬長
```

**Code Page 949 Korean (Cont.)**

EE40 – EEFF

| | |
|---|---|
| 40 | |
| 50 | |
| 60 | |
| 70 | |
| 80 | |
| 90 | |
| A0 | 障再裁在宰才材栽梓溨滓災縡裁財 |
| B0 | 戴齋齎爭箏諍佇低儲咀姐底抵杵楮 |
| C0 | 樗沮渚狙猪疽箸紵苧藷蕏齟貯躇遉 |
| D0 | 邸雎齟勣吊嫡寂摘敵滴狄炙的積笛籍 |
| E0 | 績蹟荻謫賊赤跡蹟迪迹適鏑佃佺傳全 |
| F0 | 典前剪塡塼癲專廛廳悛戰栓殿氈澱 |

EF40 – EFFF

| | |
|---|---|
| 40 | |
| 50 | |
| 60 | |
| 70 | |
| 80 | |
| 90 | |
| A0 | 煎琠田甸畑癲筌箋箭篆纏詮輾轉鈿 |
| B0 | 銓錢鐫電顚顫餞切截折浙癤竊節絶占 |
| C0 | 岾店漸点粘霑鮎點接摺蝶丁井亭停偵 |
| D0 | 呈娗定幀庭廷征情挺政整旌晶晸柾楨 |
| E0 | 檉正汀淀淨淳湞瀞炡玎珽町睛碇禎程 |
| F0 | 穽精綎艇訂諪貞鄭酊釘鉦鋌錠霆靖 |

F040 – F0FF

| | |
|---|---|
| 40 | |
| 50 | |
| 60 | |
| 70 | |
| 80 | |
| 90 | |
| A0 | 靜頂鼎制劑啼堤帝弟悌提梯濟祭第 |
| B0 | 臍薺製諸蹄醍除際霽題齊俎兆凋助嘲 |
| C0 | 弔彫措操早晁曺朝條棗槽漕潮照燥 |
| D0 | 爪璪眺祖祚租稠窕粗糟組繰臊藻蚤詔 |
| E0 | 調趙躁造遭釣阻雕鳥族簇足鏃存尊卒 |
| F0 | 拙猝倧宗從悰慫棕淙琮種終綜縱腫 |

F140 – F1FF

| | |
|---|---|
| 40 | |
| 50 | |
| 60 | |
| 70 | |
| 80 | |
| 90 | |
| A0 | 踪踵鐘鍾佐坐左座挫罪主住侏做姝 |
| B0 | 胄呪周嗾奏宙州廚晝朱柱株注洲湊澍 |
| C0 | 炷珠疇籌紂紬綢舟蛛註誅走躊輳週酎 |
| D0 | 酒鑄駐竹粥俊儁准埈寯峻晙樽浚準濬 |
| E0 | 焌畯竣蠢逡遵雋駿茁中仲衆重卽櫛楫 |
| F0 | 汁葺增憎曾拯烝甑症繒蒸證贈之只 |

F240 – F2FF

| | |
|---|---|
| 40 | |
| 50 | |
| 60 | |
| 70 | |
| 80 | |
| 90 | |
| A0 | 咫地址志持指摯支旨智枝枳止池沚 |
| B0 | 漬知砥祉祗紙肢脂至芝芷蚔誌贄趾 |
| C0 | 遲直稙稷織職唇嗔塵振搢晉桭榛殄 |
| D0 | 津溱珍瑨璡畛疹盡眞瞋縉縝臻蔯袗 |
| E0 | 診賑軫辰進鎭陣陳震侄叱姪嫉帙桎瓆 |
| F0 | 疾秩窒膣蛭質跌迭斟朕什執潗緝輯 |

F340 – F3FF

| | |
|---|---|
| 40 | |
| 50 | |
| 60 | |
| 70 | |
| 80 | |
| 90 | |
| A0 | 鏶集徵懲澄且侘借叉嵯嵳嵯次此磋 |
| B0 | 箚茶蹉車遮捉搾着窄錯鑿齪撰澯燦璨 |
| C0 | 瓚竄簒纂粲讚贊鑽餐饌刹察擦札紮 |
| D0 | 僭參塹慘慙懺斬站讒讖倉倡創唱娼廠 |
| E0 | 彰愴敞昌昶暢槍滄漲猖瘡窓脹艙菖蒼 |
| F0 | 債埰寀寨彩採砦綵菜蔡采釵冊柵策 |

Code Page Traditional Chinese (Cont.)

F440 - F4FF

40
50
60
70
80
90
A0　　　　責漢妻懷處個剌劊尺愾戚拓擲斥滌
B0　瘩瞀蹽陟陞仟千喘天川擅泉淺玔穿舛
C0　鷹賸踐邅釧閬阡黿凸哲喆徹撤澈綴輟
D0　轍鍤僉尖沾添甜瞻簽籤詹詹墥妾帖捷
E0　牒疊睫諜貼軏廳晴淸聽蕎講菁鯖切剃
F0　瞢涕濟締諦遞遍體初剿哨憔抄招梢

F540 - F5FF

40
50
60
70
80
90
A0　　　　椒楚樵炒焦硝礁礎秒稍肖艸苕草蕉
B0　貂超酢醋礁促喔燭矗蜀觸寸忖村邨叢
C0　塚寵憑憑綳聰蔥銃撮催崔最墜抽揪
D0　椎楸楸湫鰍秋麹萩諏趨追鄒酋醜錐錘
E0　鎚雛齁鰍丑畜祝竺筑築縮薯躊躇軸逐
F0　睿楮璩出朮融充忠沖矗衝衷悴脺萃

F640 - F6FF

40
50
60
70
80
90
A0　　　　贅取吹嘴娶就炊翠聚脆臭趣醉騼馲
B0　側仄廁惻測層傪值嗤峙幟恥梔治淄熾
C0　痔痴癡稚穉緻緻置致崔輜雉馳齒剆勅
D0　飭親七柒漆傻癱枕沈浸琛砧針鍼墊秤
E0　稱快他侘唾墮妥憜打拖朶楮舵陀馱駝
F0　偉卓啄坼度托拓擢晫柝濁濯琢琸乇

F740 - F7FF

40
50
60
70
80
90
A0　　　　鐋吞嘆坦彈憚歎灘炭綻誕奪脫探眈
B0　耽貪塔搭榻宕帑湯糖盪兌台太怠態殆
C0　汰泰笞胎苔跆部颱宅擇澤撑攄兔吐土
D0　討慟桶洞痛筒統通堆槌腿褪退頹儻套
E0　妬投透鬪慝特闒坡婆巴把播擺杷波派
F0　爬罷破龐芭跛頗判坂板版瓣販辦飯

F840 - F8FF

40
50
60
70
80
90
A0　　　　阪八叭捌佩唄悖敗沛浿牌狽稗霸貝
B0　彭澎烹膨憪便偏扁篇編翩遍鞭驃貶
C0　坪平枰萍評吪變幣廢斃斃肺蔽閉陛佈
D0　包佈飽咆哺圃布怖抛抱捕暴泡浦疱砲
E0　胞腩苞葡蒲袍裒逋鋪飽鮑幅暴曝瀑爆
F0　輻俵剽彪慓杓標漂瓢票表豹飆飆飈

F940 - F9FF

40
50
60
70
80
90
A0　　　　品禀楓諷豐風馮彼披疲皮被避陂匹
B0　弼必泌泌畢疋篳苾祕乏邊下何厦夏廈
C0　豐河瑕荷蝦賀遐霞瑕墼學虛謔鶴寒恨
D0　悍旱汗漢瀚罕翰閒閒限轄割轄函含
E0　威唅喊檻涵緘艦銜陷鹹合哈盒蛤閤闔
F0　陝亢伉姮嫦巷恒抗杭桁沆港缸肛航

**Code Page 949 Korean (Cont.)**

FA40 - FAFF

```
40
50
60
70
80
90
A0          行降項亥偕咳垓奚孩害幗楷海瀣蟹
B0    解該膾邂駭骸劾核侅幸杏荇行享向嚮
C0    珦鄉響餉饗香噓墟廬許憲櫶歇獻軒歇險
D0    驗奕焃赫革倪峴弦懸晛泫炫玄玹現眩
E0    睍絃絢縣舷衒見賢鉉顯子穴血頁嫌俠
F0    協夾峽挾浹狹脅脇莢鋏頰亨兄刑型
```

FB40 - FBFF

```
40
50
60
70
80
90
A0          形涧熒瀅瀅炯熒珩瑩荊瑩衡逈邢瑩
B0    鎣兮彗慧蕙暳蕙蹊醯鞋乎互呼壕醯好
C0    岵弧戶扈昊晧毫浩淏湖滈滸滬濠濩灝狐
D0    琥瑚瓠皓祜糊縞胡芦葫蒿虎號蝴護壕
E0    鎬頀顥惑或酷婚香混渾琿魂忽惚笏哄
F0    弘汞泓洪烘紅虹訌鴻化和嬅樺火畫
```

FC40 - FCFF

```
40
50
60
70
80
90
A0          禍禾花華話譁貨靴廓擴攫確碻穫丸
B0    喚奐宦幻患換歡晥桓渙煥環紈還轘鰥
C0    活滑猾豁闊凰幌徨恍惶愰慌晃晄榥況
D0    澋滉潢煌璜皇篁簧荒蝗遑隍黃匯回廻
E0    徊恢悔懷晦會檜淮澮灰獪繪膾茴蛔誨
F0    賄劃獲宖橫鐄哮嚆孝效斅曉烏淆淆
```

FD40 - FDFF

```
40
50
60
70
80
90
A0          爻肴酵驍侯候厚后吼喉嗅帿後朽煦
B0    珝逅勛勳塤塤熏焄熏訓暈薰喧暄煊
C0    萱卉喙毀彙徽揮暉煇諱輝麾休攜休畦
D0    虧恤譎鷸兇凶匈洶胸黑昕欣炘痕吃屹
E0    紇訖欠欽歆吸恰洽翕興僖凞喜噫囍姬
F0    嬉希憙憘戯晞曦熙熹熺犧禧稀羲詰
```

## Code Page 950 Traditional Chinese

### A440 - A4FF

| | |
|---|---|
| 40 | 一乙丁七乃九了二人儿入八几刀刁力 |
| 50 | 匕十卜又三下丈上丫丸凡久幺也乞于 |
| 60 | 亡兀刃勺千叉口土士夕大女子孑孓寸 |
| 70 | 小尤尸山川工己巳巴巾干并弋弓才 |
| 80 | |
| 90 | |
| A0 | 丑丐不中丰丹之尹予云井互五亢仁 |
| B0 | 什仃仆仇仍今介仄元允內六兮公冗凶 |
| C0 | 分切刈勻勾勿化匹午升卅卞厄友及反 |
| D0 | 壬天夫太夭孔少尤尺屯巴幻廿弔引心 |
| E0 | 戈戶手扎支文斗斤方日曰月木欠止歹 |
| F0 | 毋比毛氏水火爪父爻片牙牛犬王丙 |

### A140 - A1FF



### A540 - A5FF

| | |
|---|---|
| 40 | 世丕且丘主乍乏乎以付仔仕他仗代令 |
| 50 | 仙仞充兄再冊冬凹出凸刊加功包匆北 |
| 60 | 匝仟半卉卡占卯厄去可古右召叮叩叨 |
| 70 | 叼司叵叫另只史叱台句叭叻四囚外 |
| 80 | |
| 90 | |
| A0 | 央失奴奶孕它尼巨巧左市布平幼弁 |
| B0 | 弘弗必戊打扔扒扑斥旦朮本未末札正 |
| C0 | 母民氐永汁汀氾犯玄玉瓜瓦甘生用甩 |
| D0 | 田由甲申疋白皮皿目矛矢石示禾穴立 |
| E0 | 丞丟乒乓乩亙交亦亥仿伉伙伊伕伍伐 |
| F0 | 休伏仲件任仰仳份企伋光兇兆先全 |

### A240 - A2FF



### A640 - A6FF

| | |
|---|---|
| 40 | 共再冰列刑划刎刖劣匈匡匠印危吉吏 |
| 50 | 同吊吐吁吋各向名合吃后吆吒因回囝 |
| 60 | 圳地在圭圬圯圩夙多夷夸妄奸妃好她 |
| 70 | 如妁字存字守宅安寺尖屹州帆并年 |
| 80 | |
| 90 | |
| A0 | 式弛忙忖戎成戍扣扛托收早旨旬 |
| B0 | 旭曲曳有朽朴朱朵次此死氖汝汗汙江 |
| C0 | 池汐汕污汛汊汔灰牟牝百竹米糸缶羊 |
| D0 | 羽老考而耒耳聿肉肋肌臣自至臼舌舛 |
| E0 | 舟艮色艾虫血行衣西阡串亨位住佇佗 |
| F0 | 佞伴佛何估佐佑伽伺伸佃佔似但佣 |

### A340 - A3FF



### A740 - A7FF

| | |
|---|---|
| 40 | 作你伯低伶余佝佈佚兌克免兵冶冷別 |
| 50 | 判利刪刨劫助努劬匣即卵吝吭吞吾否 |
| 60 | 呎吧呆呃吳呈呂君吩告吹吻吸吮吵呐 |
| 70 | 吠吼呀吱含吟听囪困囤囫坊坑址坍 |
| 80 | |
| 90 | |
| A0 | 均坎圾坐坏圻壯夾妝妒妨妞妣妙妖 |
| B0 | 妍妤妓妊妥孝孜孛完宋宏尬局屁尿 |
| C0 | 尾岐岑岔岌巫希序庇床廷弄弟彤形彷 |
| D0 | 役忘忌志忍忱快忸忪戒我抄抗抖技扶 |
| E0 | 抉扭把扼找批扳抒扯折扮投抓抑抈改 |
| F0 | 攻攸旱更束李杏材村杜杖杞杉杆杠 |

Code Pare 949 Traditional Chinese (Cont.)

**A840 – A8FF**

| | |
|---|---|
| 40 | 杓宗步每求汞沙沁沈沉沅沛汪決沐汰 |
| 50 | 沌汨沖沒汽沃汲汾汴沆汝洰沔沘沂灶 |
| 60 | 灼災灸牢牡牠狄狂玖甬甫男甸皂町矣 |
| 70 | 私秀禿究系罕肖肓肝肘肛肚育良芒 |
| 80 | |
| 90 | |
| A0 | 芋芍見角訁谷豆豕貝赤走足身車辛 |
| B0 | 辰迂迆迅迄巡邑邢邪邦那酉采里防阮 |
| C0 | 阱阪阮並乖乳事些亞享京佯依侍佳使 |
| D0 | 佬供例來侃佰併佻佩佻侖佾侏侑佯兔 |
| E0 | 兒兕兩具其典冽函刻券刷刺到刮制刷 |
| F0 | 劾劻卒協卓卑卦卷卸卹取叔受味呵 |

**A940 – A9FF**

| | |
|---|---|
| 40 | 咖呸咕咀呻呷咄咒咆呼咐呱咏和咚呢 |
| 50 | 周咋命咎固垃坷坪坩坡坦坤坼夜奉奇 |
| 60 | 奈奄奔妾妻委妹妮姑姆姐姍始姓姊妯 |
| 70 | 妳妼妷孟孤季宗定官宜宙宛尚屈居 |
| 80 | |
| 90 | |
| A0 | 屆岷岡岸岩岫岱岳帘帚帖帕帛帑幸 |
| B0 | 庚店府底庖延弦弧弩往征彿彼忝忠忽 |
| C0 | 念忿快忱怯忡怖怪怕怡性怩怫怛或戕 |
| D0 | 房戾所承拉拌拄振拂抹拒招披拓拔抛 |
| E0 | 拈抨抽押拐拙拇拍抵抸抱拘拖拗拆抬 |
| F0 | 拎放斧於旺昔易昌昆昂明昀香昕昊 |

**AA40 – AAFF**

| | |
|---|---|
| 40 | 昇服朋杭枋枕東果杳杷枇枝林杯杰板 |
| 50 | 枉松析杵枚枓枵杲欣武歧歿氓氛泣 |
| 60 | 注泳沱泌泥沽沾沼波沫法泓沸泄油 |
| 70 | 況沮泗泅泱沿治泡泛泊沫泯泜泖泠 |
| 80 | |
| 90 | |
| A0 | 炕炎炒炊炙爬爭爸版牧物狀狎狙狗 |
| B0 | 狐玩玨玫玥玦玳疝疚疢的盂盲直知矽 |
| C0 | 社祀祁秉秈空穹竺糾罔羌羋者肺肥肢 |
| D0 | 肱股肫肩肴肪肯臥臾舍芳芝芙芭芽芟 |
| E0 | 芹花芬芥芯芸茉茇苊虎虱初表軋迎 |
| F0 | 返近邵邸邱邶采金長門阜陀阿阻附 |

**AB40 – ABFF**

| | |
|---|---|
| 40 | 陂佳雨青非亟亭亮信侵侯便俠俑俏保 |
| 50 | 促侶俘俟俊俗俟俐俄係俚俎俞侷俎冒 |
| 60 | 冑冠剎剃削前剌剋則勇勉勃勁匍南卻 |
| 70 | 厚叛咬哀咨咬哉咸咦咳哇哂咽咪品 |
| 80 | |
| 90 | |
| A0 | 哄哈咯咫咱咻咩咿咧咦垂型垠垣垢 |
| B0 | 城垮垓奕契奏奎奐姣妍姿姣姨娃姥姪 |
| C0 | 姚姦威姻孩宣宦室客宥封屎屏屍屋峙 |
| D0 | 峒巷帝帥幽庠度建弈弭彥很待徊律 |
| E0 | 徇後徉怒思怠急怎怨恍恰恨恢恃恬 |
| F0 | 恫恪恤扁拜挖按拼拭持拮拽指拱拷 |

**AC40 – ACFF**

| | |
|---|---|
| 40 | 拯括拾拴挑挂政故斫施既春昭映昧是 |
| 50 | 星昨昱昤昴柿染柱柔某柬架枯柵柩柯 |
| 60 | 柄柑柺柚查枸柏柞柳柈柙柢枷柒歪殃 |
| 70 | 殆段毒毗氟泉洋洲洪流津洌洱洞洗 |
| 80 | |
| 90 | |
| A0 | 活洽派洶洛泵洹洧洸洩洮洵洎洫炫 |
| B0 | 為炳炬炯炭炸炮炤爰牲牯牴狩狠狡珏 |
| C0 | 珊玻玲珍珀玳甚甭畏界畎畋疫疤疥疢 |
| D0 | 疣癸皆皇皈盈盆盅省眄相眉看盾盼 |
| E0 | 眇矜砂研砌砍祆祉祈祇禹禺科秒秋穿 |
| F0 | 突竿竽籽紂紅紀紉紇約紆缸美羿耄 |

**AD40 – ADFF**

| | |
|---|---|
| 40 | 耐耍耑耶胖胥胚脅脅背胡胛胎胞胤胝 |
| 50 | 致舢苧范茅苣奇苦茄若茂苒苷苗英苜 |
| 60 | 苴苔苑苞苓苟苯茆苺虹虻虺衍衫要觔 |
| 70 | 計訂訃貞負赴赳趴軍軌述迦迢迪迥 |
| 80 | |
| 90 | |
| A0 | 迭迫迢迢郊郎郁郃酋酊重閂限陋陌 |
| B0 | 降面革韋韭音頁風飛食首香乘毫倌倍 |
| C0 | 倣俯倦倥偉倩倖倆值借倚倒們俺俵倜 |
| D0 | 倨俱倡個候倘俳修倭倪俾倫倉兼冤冥 |
| E0 | 冢凍凌准凋剖剜剛剝匭哺原厝叟哨 |
| F0 | 唐唁唷唳哥哲唆哺唔哩哭員唉哮哪 |

**AE40 – AEFF**

| | |
|---|---|
| 40 | 哦唧唇哽唏圃圄埂埔埋埃埕夏套奘奚 |
| 50 | 娑娘娜娟娛娓娬娠娣娩娥娌娉孫孬孱 |
| 60 | 害家宴宮宵容宸射屑展屐峭峽峻峪峨 |
| 70 | 峰島崁峴差席師庫庭座弱徒徑徐恙 |
| 80 | |
| 90 | |
| A0 | 恣恥恐恕恭恩息悄悟悍悌悔悌悅悖 |
| B0 | 扇拳挐拿捎挾振捕捂捆捏捉挺捐挽挪 |
| C0 | 挫挨捭捌效料料旁旅時晉晏晃晌晒晅 |
| D0 | 晁書朔朕朗校核案框桓根桂桔栩梳栗 |
| E0 | 桌桑栽柴桐桀格桃株桅栓梭桁殊殉殷 |
| F0 | 氣氧氨氦氫泰浪涕消涇浦浸海浙涓 |

**AF40 – AFFF**

| | |
|---|---|
| 40 | 涅涉浮浚浴浩涌澀浹涅浥浯烊烘烤烙 |
| 50 | 烈烏參特狼狹狽狸狷玆班琉珮珠珪珞 |
| 60 | 畔畝畜畚留疾病症疲疳疽疼疹痂疸畢 |
| 70 | 皰盍盎盉眩真眠眨矩砰砧硒砝砧破砷 |
| 80 | |
| 90 | |
| A0 | 砥砭砠砟砲祕祐祠祟祖神祝祗祚秤 |
| B0 | 秣秧租秦秩秘秘秤笆笑粉紡紗紋紊 |
| C0 | 素索純紐紕級紜納紙紛缺罟羔翅翁耆 |
| D0 | 耘耕耙耗耽耿胱脂胰脊胭胴脆胸胳脈 |
| E0 | 能脊胼胯臭臬舀舐航舫舨舨舫舫荒茹 |
| F0 | 荊荳荸草茵茴荏茲茹茶茗荀荼茨荃 |

Code Pare 980 Traditional Chinese (Cont.)

**B040 - B0FF**

```
40   虔蚊蚪蚓蚤蚩蚌蚣蚜裒衰袁袂衽衹記
50   訐討訌訕訊託訓訖訏訑豺豹財貢起
60   躬軒軔軏尋送逆逃退逅迴逃迫逅迸崑
70   郡郝郟酒配酌釘針釗釜卜閃院陣陡
80
90
A0        陛陝除陘陞隻飢馬骨高鬥鬲鬼乾偕
B0   偽傳假傴傲傲偉健偶偃偕偵側偷偏倏
C0   偵偭兜冕凰剪副勒務勘匐匏匙匭匾區
D0   匾參曼啉啦啄啞啡啃啊唱唸問啕唯
E0   啤唸售啜唬唰唷啁啗國圇圉域堅堊堆
F0   埠埤基堂堵執培夠奢娶嫠婉婦娑婀
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**B140 - B1FF**

```
40   娼婢婚婆娾孰寇寅寄寂宿密尉專將屠
50   屜屝崇崆崎崛崑崢崙崩崔崤崧崗巢
60   常帶帳帷康庸庶庵庾廁庹張強彗彬彩彫得
70   徙從徘御徠徜惠患悉悠您悄悴怙懷
80
90
A0        情悻悵惜悼惘惕惆惟悸悻惇威戛屢
B0   掠控捲掖探接掩捧掘措捱捵捫揮拼捫
C0   推掄授掙採掬排掏掀捻搌捨敝敖救
D0   教敗啟敏敘敚敔斜斛斬族旋旌施晝晚
E0   晤晨晦晞曹曼望梁梯梢梓梵桿桶梱梧
F0   梗械梃棻梭梆梅梔條梨梟梡梂欲殺
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**B240 - B2FF**

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40   毫毯毹涎涼淳涼液淡洵淤添淺清淇淋
50   涯淑涮淞淹涸混淵淅淒渚涵淚淫淘淪
60   深淮淨淯淄涪淬淥淦烹焉焊烽烯爽牽
70   犁猙猛猖猓猙率琅琊球理現琍瓠瓶
80
90
A0        瓷甜產略畦畢異疏痔痕疵痊痍皎盔
B0   盒盛眷眾眼眶眸眺硫硃硎祥票祭移窒
C0   窕笠笨笛第符笙笤笞粒粗粕絆絃統紮
D0   紹絆紬細紳組絮終絀紼羞羚翌翎習
E0   耜聊聆脯脖臂脫脩脬脹舂舵舷舶船莎
F0   莞荸莢荳荵莫莒莊莓莉荷荷荻荼
```

**B340 - B3FF**

```
40   莆莧處彪蛇蛀蚶蛄蚵蛆蛋蚱蚯蛉術袞
50   裂被袒袖袍袋覓規訪訝訣訥許設訟訛
60   訴豉豚販責貫貨貪貧赧赦趾趺軛軟這
70   逍通逗連速逝逐逕逞造透逢逖逛途
80
90
A0        部郭都酗野釵釘釣釧釭釩閉陪陵陳
B0   陸陰陴陶陷阪雀雩雪章竟頂頃魚鳥鹵
C0   鹿麥麻傢傍傕備傑傀傖傘傚最凱割劃
D0   創剩勞勝勛博啻喀喧啼喊喝嗟喂喜
E0   喪喔喇喋喃喳喧喵唾啾喚喻喬喱啾喉
F0   喫喙圍堯堪場堤堰報堡堝堨壹壺貴
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**B440 - B4FF**

```
40   婷媚婿媒媛婐孳孱寒富寓寐尊尋就嵌
50   嵐崴嵇巽幅帽幀幃幾廊廁廂廄弼彭復
60   循徨惑惡悲悶惠惆愕惺愕情惻惆慨惱
70   惶惶愉愀惕戟扉掰掌描揀揩揉揆揍
80
90
A0        插揣提握揖揭揮捶援揪換揶揚揹敏
B0   教敢散斑斐斯普晰晴晶景暑智晾曷曾
C0   替期朝棺棕業棘棄椅棟樑森椄棹棒樓
D0   棣棋棍植椒椎棉棚楮棻款欺欽殖殘殼
E0   毯氯氬氳港游渝渡湝湧湊渠渥渣減湛
F0   湘渤湖湮湞渦湯渴湍渺測湃渝潭滋
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**B540 - B5FF**

```
40   溉渙灑溶湄湲渾湟焙焚焦焰無然煮焜
50   牌犄犀猶猥猴猩玳琪琳琢琥琶琵琴琯
60   琛琦琨瑯甦番痢痛痣痤痘痞痠登發
70   皖皓皴盜睏短硝硬硯稍稈程稅稀窘
80
90
A0        窗窖童竣等策筆筐筒答筍筋筏筑粟
B0   粥絞結絨紫紮絮絲絡給絢經絳善翔鑫
C0   羹聒聘腕腔腋腑腎腴腆脾腋腓腴舒舜
D0   菩萃慈萍菠菅菁菇華萋萎萱著萊菰萌菌
E0   菽菲菊萸萼萵菫菔菟菱蛟蛙蛭蛔蛛
F0   蛤蛐蛯街裁裂袱覃視註詠評詞証詀
```

**B640 - B6FF**

```
40   詔詛詐詆訴診詗詖象貂貯貼貳貽貴費
50   賀貴買貶賀貨越超趁跎距趺跚跑跌跛
60   跆軻軼軸逮達週逸進逯鄂郵鄉鄖酣
70   酥量鈔鈕鈣鈉鈞鈍鈐鈇鈑閔閏開閑
80
90
A0        閒閉閤隊階隋陽隅隆隍陲隄雁雅雄
B0   集雇雯雲軔項順須殞飪飯飩飲飭馮馭
C0   黃黍黑亂傭債傲傳僅傾催傷傻僇僇剿
D0   剷剽募勤勦勤凘嗟嗨嗓嗦嗎嗜嗇嗑
E0   嗣嗟嗯嗚嗑嗅嗆嗥嗉嗟嗊園塞塑塘塗塚
F0   塔塡塌塢塊塢塒塍奧嫁嫉嫌嫖嫦嫗
```

**B740 - B7FF**

```
40   媳嫂媲嵩嵯幌幹廉廈弒彙彀微愚意慈
50   感想愛惹愁愍慎慌慄慍慚慷愧愍愕愷
60   戡戥搓搾搞搪搭搽搬搏搜搔損搶搖搗
70   搆敬斟新暗暉暇暖暄暘暍會椰業
80
90
A0        楚楷楠楔極椰概楊楨楫楞楓楹楣楝
B0   楣楛歇歲毀殿毓毽溢溯滓溶滂溝源溝滇
C0   滅溥溘溼溺溫滑準溜滄滔溪溧溴煎煙
D0   煩煤煉照煜煬煦煌煥煞煆煨煖煎煉獸
E0   獅猿猾瑯瑚瑕瑟瑞瑁瑋瑙瑛瑜瑂畸痰
F0   痰瘁瘋痱痺痰痴痳盞盟睛睫睦睞督
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Code Pare 950 Traditional Chinese (Cont.)

**B840 - B8FF**

| | |
|---|---|
| 40 | 睹睪睬睜睥睨睢矮碎碰碗碘碌碉硼碑 |
| 50 | 碓碑祺祿禁萬禽稜稚稠稔稟稞窟窠楔 |
| 60 | 筋筠筍筐粳粱綁經絹綑綁綏慄置罩罪 |
| 70 | 署義羨群聖聘肆肄腱腰腸腥腮腳腫 |
| 80 | |
| 90 | |
| A0 | 腹腺腦翟艇蒂葷落萱葵葦胡葉莽葛 |
| B0 | 尊萵葡葫荍葆虜虞號蛹蜓蜈蜒蜀蛾 |
| C0 | 蛻蜂蜃蜆蜊衙裟裔裙補裘裝裡裊裕裛 |
| D0 | 覡解觥該詳試詩詰誇詼詭誠話誅詭詢 |
| E0 | 詮詬賂賅貲貉賊賈賄貲賃賂 |
| F0 | 賅跡跟跨路跳踩跪跤跌躲較載軾輕 |

**B940 - B9FF**

| | |
|---|---|
| 40 | 辟農運遊道遂達逼違遐遇過遍逼逾 |
| 50 | 遁鄒鄗酬酪酩釉鈷鉗鈸鈽鈿鉛鈾鮑鉤 |
| 60 | 鉑鈴鉉鈹鉅鈸鈿鉚閘隘隔隕雍雋雉雌 |
| 70 | 雷電雹零靖靴靶預頑頓頊頌頏飼飴 |
| 80 | |
| 90 | |
| A0 | 飽飾馳馱馴髡髦鳩鳧鼎鼓鼠僧僮僥僖 |
| B0 | 僭僚僕像僑僱僎僩兢兟兢劂劃劁厭嗽嘀 |
| C0 | 嗾嘗嗽嘔嘆嘉嘎嘔嘖嘔嘍嘜嘩團圖 |
| D0 | 塵墊境墓墊塹墅塿壽夥夢夤奪嫡嫦 |
| E0 | 嫩嫗嫖嫘嫻孵寡寧寥寨寞寝寤察對 |
| F0 | 屢嶄嶇嶂幣幕幗幔廓廖弊彰彰徹愆 |

**BA40 - BAFF**

| | |
|---|---|
| 40 | 愿態慷慢慣慟慚慘慵截摘摘摔撤摸摟 |
| 50 | 摺摑摧摯摭摻敲斡旗旖暢暨嗼榜榕榭 |
| 60 | 槁榦槓榛構榻榫榴槐槍榭槌榺槃格 |
| 70 | 歉歌氳漳演滾漓滴漩漾漠漬漏漂漢 |
| 80 | |
| 90 | |
| A0 | 滿滯漆漱漸漲漣漕漫漂漱滸滷漁滲 |
| B0 | 滌滷熔熙煽熊熄熒爾犒犖獄獐瑤瑣瑪 |
| C0 | 瑰瑭甄疑瘧瘍瘋瘉瘓監瞄睽睿睡磁 |
| D0 | 碟碧碳碩碣禎福禍種稱窪窩端管箕 |
| E0 | 箋筵算箝箔箏箒箕粹粽精綻綰綜綽 |
| F0 | 綾綠緊綴網綱綺綢綿綵綸維緒緇綬 |

**BB40 - BBFF**

| | |
|---|---|
| 40 | 罰翠翡翟聞聚肇腐膀膏膈膊腿膂臧臺 |
| 50 | 與舔舞艋蒼蓓蓊菼蒞滷蒜蓋蒸蒹蓓 |
| 60 | 蒐蒼蓑蕎蜿蜜蜻蜓蜥蜴蜴蜻蜩蜚蜱 |
| 70 | 裳裹裸製褌褚褊誦誌語誣認誡誙誤 |
| 80 | |
| 90 | |
| A0 | 說誥誨誘誑誚誧豪貍貌賓賑賒赫趙 |
| B0 | 趕跼輔輓輕輒辣遠遘遜遣遙遞遢遜遛 |
| C0 | 鄙鄘鄲醉酸酷酴餃銀銅銘銖銠銓銜銨 |
| D0 | 銬銑閨閩閣閡閥閭隙障際雌雒幕魠鞅 |
| E0 | 韶頗領颯颱餃餅餌餉餃餂餮魁魂鳴 |
| F0 | 鳶鳳鼻鼻齊億儀僻僵價儂儈儉儅稟 |

**BC40 - BCFF**

| | |
|---|---|
| 40 | 劇劈劉劍創勰厲嘮嘻嘹嘲嘿嘴嘩噓嘻 |
| 50 | 噗噴嘶嘯嘰墀墟墉增墳墩墮墩墦墭墘墀 |
| 60 | 嬋嫵嬌嬈寮寬審寫層履嶝嶔嶒嶒幢潑 |
| 70 | 廚廟廝廣廠彈影德徵慶慕廪慝慕憂 |
| 80 | |
| 90 | |
| A0 | 慼慰慫慾憧憐憫憎憚憤憔憮憝寧 |
| B0 | 摯摹撣撲撈撐撒撥撓撕撩撤撮播撫撚 |
| C0 | 撬撙撞撤敷敵暮暫暴暵樣樟樨槽樞 |
| D0 | 樑槽模樓樊槳樅械樑歐歎殤穀殿漿 |
| E0 | 潼澄潑潦潔潭潭潛澆潮澎潺潰潰潤潘 |
| F0 | 滕澇潠潟熟熬熱熨牖犛獎獗螢璋璃 |

**BD40 - BDFF**

| | |
|---|---|
| 40 | 瑾璀皚瘠瘩瘤瘦瘍瘢瘟皺盤瞎瞇瞌 |
| 50 | 瞑瞑磋磅確磊碾磕碼磐稿稼穀稽稷稻 |
| 60 | 窯窮箭箱範籤簣窳窯簑篌糊締練緯緻 |
| 70 | 緘緬緝編緣線緞緩緦緯緲緹罵罷羯 |
| 80 | |
| 90 | |
| A0 | 翦耦腟膜膝膠膚膘蕉蔽蔚蓮蔬蔭蔓 |
| B0 | 蔑蔣蔡蔔蕙蓿蔆蝴蝶蝠蝦蝸蝨蝙 |
| C0 | 蝗蝌蝓衛衝褐複褒褓褕褊諤諒談諄諜 |
| D0 | 請諸諜諉調誼誰論諍誶誹諏諏豎豬賠 |
| E0 | 賞賦賤賬賭賢賣賜賢賡賭趟趣趟踐踝 |
| F0 | 踢踏踩踟踞踡踦躺輛輟輦輩輪輻輞 |

**BE40 - BEFF**

| | |
|---|---|
| 40 | 輥適遮遨遭遷鄰鄭鄧鄱醇醉醋醃鋅鋪 |
| 50 | 銷鋪鋩鋤鋁銳銼鋒鋇鋰鋃閬閱霄霆震 |
| 60 | 霉靠鞍鞋鞏頡頫頜頤頦頸頤頷頷駑駟 |
| 70 | 駛駕駑駒魴魁髮髯鬧魅魍魷魯鳩鴉 |
| 80 | |
| 90 | |
| A0 | 魨麩麾黎墨齒儐儖儔儐儕冀冀凝劑 |
| B0 | 劓勳噙噫噹噤噪噥噦器噥噱噯噬噢噶 |
| C0 | 壁嬴壇壅壑嬴學奮導嶧憲憑憩憶憨 |
| D0 | 憶憾懊懈戰擅擁擋撻撼擄撻擇擂操撿 |
| E0 | 擒擔擇整曁曇曄疊曖樽橫橇橙橫橘 |
| F0 | 樹橄橢榛橋橛橇機橈歙歷氅澡澱澡 |

**BF40 - BFFF**

| | |
|---|---|
| 40 | 濃澤濁澧澳澥澹澶澠澠濆熾熾燉燈 |
| 50 | 燕熹燎燙燜燉獨璜璣璘璟璞瓢甌甌甓 |
| 60 | 璋瘸瘺盧盥瞠瞞瞜瞥磨磚磬磧禦積穎 |
| 70 | 穆穌積窺篚篝篥篤籟篡篩篦糕糖縊 |
| 80 | |
| 90 | |
| A0 | 縑縈縛縣縝縞縟罹羲翰翱翮耨瞽 |
| B0 | 膩膨臻興艘艙蕊蕙蕈蕨蕩蕃蕪蕭蕪蕨 |
| C0 | 螃螟螞螢融衡褪褥褲褫褯親覦諦諺諫 |
| D0 | 諱謀諜諧諮諾謂諷諭諳諠諼諱豫貓貓 |
| E0 | 賴踴蹄蹀蹉蹂踵踹輻輻輸輳辨辦遵遴遷 |
| F0 | 遲遼遺鄴醒錠錶錯錳錯錢鋼錫錄錚 |

Code Pare 949 Traditional Chinese (Cont.)

### C040 - C0FF

| | |
|---|---|
| 40 | 維綿錡錕綢錙闔隧隨險雕霙菬霖霍霓 |
| 50 | 霏靛靜靦鞘頹頸頻額頭額頤餮館餞餛 |
| 60 | 餡餚骸骿骼骹髻髭髭鮑駝鴣鴦鴨鴒 |
| 70 | 鴛獸黔龍龜優償儡儲勵嚎嚀嚅嚇嚇 |
| 80 | |
| 90 | |
| A0 | 嚏壕壓壑壎嬰嬪嬤孺孺屨嶼嶺獄嵯 |
| B0 | 巂彌徽應懂懃懦懋戲戴擊擊擠擰擦 |
| C0 | 擬擱擢擭斂斃曙曖檀檔橄檜櫛檣操 |
| D0 | 樂檜槳歜殮氈澤濱濟濠濛濤澀灌澀 |
| E0 | 澘濔濛濕濮濰燈營變燦燥燭燬燴澳爵 |
| F0 | 牆牾獲璋環璦璨癆療癌癆瞳瞪瞰瞬 |

### C140 - C1FF

| | |
|---|---|
| 40 | 瞧瞭矯磷磺磴磯礁禧禪穗窿簇簧篾篷 |
| 50 | 簌篠糠糜糞糢糟糙糝縮績繆縷繅繃縫 |
| 60 | 總縱縴繁縡縲縵縵縮罄翳翼螯聲聰 |
| 70 | 聯蠶膾腫膺臂臀膿膽臉膾臨舉艱薪 |
| 80 | |
| 90 | |
| A0 | 薄蕾薛薑蕃薯薛薇蕎薊薔蟀蟑蟛蟀 |
| B0 | 蟥螫蟆螺蟈蟋襖褶襄襪裂覬謎謗謙講 |
| C0 | 謊謠謝膾謐谿谿鼴賸賽購膾賻趨蹉蹋 |
| D0 | 蹈蹊轄輾轂轅輿避遽還邁邂邈鄹鄶醞 |
| E0 | 醜鍍鎂錨鍵鍊鍥鍋錘鍾鍬鍛鍰錫鍔闈 |
| F0 | 闌闋闈闊隱隸雖霜霞鞠韓顆颶餿騁 |

### C240 - C2FF

| | |
|---|---|
| 40 | 駿鮮鮫鮪鮭鴻鴿糜黏點黜黝黛黠黻黻 |
| 50 | 嚕嚮壙壘壜彝懣懇擴擾擺擻攏斃擷斷 |
| 60 | 曜朦檳檻檻檸欖檮檻歟歸殯瀉瀋瀘濾 |
| 70 | 瀆瀋瀑瀏燻爐燾燼獰獵璧璨璧癖癘 |
| 80 | |
| 90 | |
| A0 | 癒瞽瞿瞼瞼礎禮穢穢穢簞簣簫簧簪 |
| B0 | 簞簣簟糧繖繢繞繚繕繙鼴翹翻職曜 |
| C0 | 膾膾蕷蕷隤藍藐薪薰薷蕭蟯蟬蟲蟠 |
| D0 | 覆覲觴謨謹謬謫豐贅蹙蹣蹦蹤蹟躇軀 |
| E0 | 轉輯邇邃邈醫醬鼇鎔鎊鎖鎬鎳鎖鎬鎰 |
| F0 | 鎘鎚鎗闖闔闡闕離雜雙雛雞霤霨鞦 |

### C340 - C3FF

| | |
|---|---|
| 40 | 鞭鞬額顏題顙顗顒顓餶餿餿餽飀鬃鬆 |
| 50 | 鬆魏鯉魎鯊鯉鯽鯈鯀鯁鵑鵝鴇鵠黠鼕鼬簋 |
| 60 | 嚥壞壟壚寵龐廬廱懲懷懵懵攀攏曝曠 |
| 70 | 檯櫝檮瀛瀟瀨瀚瀝瀕瀘爆燦牘犢獸 |
| 80 | |
| 90 | |
| A0 | 獺璽瓊瓣疇疆癟癡癢瞼矊礦禱穫穩簾簿 |
| B0 | 簸簽簷簹繫繭繩繹繪繳繯羹羸臘臟藩 |
| C0 | 藝藪藕藤藥蕭蟻蠅蟶蠍蟶禱襟襖襞襦 |
| D0 | 譜譏證譚譖譏譙譙贈贄蹼蹲蹺蹶蹬蹺 |
| E0 | 蹶蹲蹯辭邊遽醱醮鏡鏑鏈鏃鏜鏜鏍鏊 |
| F0 | 鏢鏍辮鏤鏗鏨闔闐隴難霧霪靡鞳韻類 |

### C440 - C4FF

| | |
|---|---|
| 40 | 願顛顗饅饐鶩騙鬚鯨鯧鯖鯛鵲鵠鵲鶉 |
| 50 | 鵰麒麗麓麴勸龐壤嚷嚶嚴嚼壞嬸孃孽寶 |
| 60 | 巉懸懺攘攔攙曦朧櫥櫬瀾瀰瀲瀲爐獻朧瓖 |
| 70 | 藏礦礪礬礫礦竇競籌藍籍糯糰辮繽繼 |
| 80 | |
| 90 | |
| A0 | 纂罌耀臚艦瀻藹藷臍藺蘆蘋蘇蘊蠔蠕 |
| B0 | 襤覺觸議警譬譯譟譫贍贍贏蹇躁躅醴醴 |
| C0 | 釋鐘饒鐦鐃飄饒饒馨騫騰騭顥騦鮒鰍 |
| D0 | 鹹麵黨黯齟齠齡儷儸儷囁囀囂嚳屬巍懼 |
| E0 | 懾攝攛灈纍櫻欄櫳灌灎爛犧瓏瓔癩矓 |
| F0 | 籐纏續纇蘩蘭辮蠣蠡蠢蠟襪襬覽譴 |

### C540 - C5FF

| | |
|---|---|
| 40 | 護譽贓贖躍躋轟辯醺醺纊纖鐺鐸鐲鏑 |
| 50 | 闢霸霹霽饗顥顠顢饔饕饛顥癮魔魑鰭 |
| 60 | 鰥鶯鶴鶬鶺鶹黯黯齜齦齬儼儻儷囊儸儸 |
| 70 | 孿巔巒巒懿攤權歡灑灘灑鄹疊癮癬 |
| 80 | |
| 90 | |
| A0 | 禳籠籟聾聽臟襲覿覿讀讀贓贐鄹躓躑轡 |
| B0 | 酈躊鑒鑒鑊鑪轢鑇顥鷗騕驍麟鬚韃饞 |
| C0 | 纑纘麻鷗鷗齬齪龔龕戀戀攣攫攪攫灔纊 |
| D0 | 瓚竊籤籥蘼蘺纔臢臟蘸蘿蠱蠻邏灄纑 |
| E0 | 纋纍醫顥饜驚驛驗髓體髑鱔鱗鱐鬢鬏 |
| F0 | 黴囈壩攬灕灕癲癲罎罎顯鷥衢讓讒 |

### C640 - C6FF

| | |
|---|---|
| 40 | 讖艷贛釀鑪羅靈靄讕轡齧齺驟饞魘魘鷹鷽 |
| 50 | 鹼齶齷鼉鼈鼉攢攢灣灘籮竊觀齟齬龜鑲鑰 |
| 60 | 顱饞饋饌齧纛釅讚鑔鑰鑪驢驥纜讜讞釀 |
| 70 | 鑽鑾鑼鑼鑪顴齬鑿纞灤躝鬱齉齉鸝鬱額 |
| 80 | |
| 90 | |
| A0 | |
| B0 | |
| C0 | |
| D0 | |
| E0 | |
| F0 | |

### C740 - C7FF

| | |
|---|---|
| 40 | |
| 50 | |
| 60 | |
| 70 | |
| 80 | |
| 90 | |
| A0 | |
| B0 | |
| C0 | |
| D0 | |
| E0 | |
| F0 | |

Code Pare 980 Traditional Chinese (Cont.)

C840 - C8FF

40
50
60
70
80
90
A0
B0
C0
D0
E0
F0

C940 - C9FF

40 乂乜凵匚厂万丌毛亍口尢屮彳丐冇与
50 孔亓仂仉仈尤旡卬尥圠乇夬尖市无殳
60 甼气丬屮丼仨仁化仡仝仚刌囬卌丁圣
70 夗夯宁尣氽尻屴夵叴竹庀庆忉戊劢气
80
90
A0 　永汈氿汃氼犰玍内肕肜伎优伬仵仉
B0 伶伀价伈伝佈伅伢伓俥伃沤刌刎刡刪
C0 姦囻匹卍屏呼囷囱圯圮屺屻屸夰攺妡妸妏
D0 妀奸妭孖杘烞屼屺屾蔴玕庄尋觯汋
E0 忕忔忏扞扝扤扡扞扻扠扱扚扢杋扜杌
F0 杚杋杻机朿朾朹气汆汇汜汏汉汔汋

CA40 - CAFF

40 洲刉劼犴犵扛用乱宅网艸芋艻艽芍也
50 两邙邤邦邛邝阢阤阠阣阦佖佢佪佚侊
60 佫佽佮佡佘佟佪侎佀冏汲剆刞劋劻
70 劭剅卣卲庂庍呔咉呲呔咬呌啞吽咩
80
90
A0 　哹呬呴吨吟夎囮囶园圽坽坴圿坾坰
B0 夆奂妶妘妠妎妵妌奻奼妼夭乇尯尳
C0 屺妑岈圾屻岺屿㟦岇杴㟪庋屯哮
D0 庨庴幷尣伭态忢志忓忼忮忲忡忤忣伋
E0 忟忟忚忴忟怌扤扏圫扲扥扟扱扺扴
F0 扰扤扟扶拖扲扴攷旰旿旳昊旵杆杅

CB40 - CBFF

40 杙杕机杈枊杅杧杌毒气焦沴汧泍泍沈
50 沏冹汯泪汫沩沈汤沪泿浂泝沠汧灯也
60 刜犽猂狌犰犺狅玕圴玨扛町粤疗
70 疟皁䄔瓦肶肵胁胅芐芏芣莒芑芌
80
90
A0 　芋芄芫多汜沀邴邥邻邬邸邷阰阯
B0 阬弣佗佼佟攲侚傺佶佴倚佢佷伳佡佪
C0 佝佹佒佸侐伂佄伽佲佺佻佂佥洗冶
D0 刞刐剀劇翔劥菊箇屌屖呁咟咁呵呭
E0 沸呫哿呾咘呬㖏呦呺呼㖘厺㘇㖞吟
F0 囻囼坏堺坭坫圬坰坵圻坻坳螥坢

CC40 - CCFF

40 坮坮麦奇妵妹妡奂妉姐娒姁妶妕妱妲姻姮
50 姂姝姞娿籫孢挛宓宕屄屵㟕岵㘭坙
60 岨岬岹岣岭屮奰峇峻峀屿尣岐岥峡峡
70 弨㢄駙弤彖徂玲低态悥怭伜怘怙怲恨
80
90
A0 　忕㤥怗悦怚怞忻伵怤怍恛怑忭忏恛
B0 怜㥦㲣扰抾拑㧊拂拺挾拊抮扼抯抻㭘挾
C0 抲敨㫱斺昉㿟昄㫨昕昗昙香昍吸晰䀥
D0 盼卨肕杅杭抶杅杻纽柄耗枃㭘柀枌杺
E0 枆桓柁抅杵极柭杚柃欫殀殁毡氣杳氿
F0 泫泮泙㳍泔沭泚波渤洞㳽洶泎洔沸

CD40 - CDFF

40 泒泝沴怰㳃㳇泃泹泍洫洏沮泄洼沏
50 㳒㳎昮炌炊炟抺炖炂映灸犇㹟㹥狂狅
60 猞猻狚狙狋狏狜狚狌㺑玢玠玡玝㹧㺖
70 䏆㽞畱㽻玕㽠盯盱盰盯㽉矼矿硡矺
80
90
A0 　矷䄥礿秅䄵穻䅿紅釘裔肮胯肟胅
B0 肭觔艾芄芫苎苾萎英芋芮笔氕芺艻芨
C0 芖苓荵荜芟茫虹虯虭虮豖䢌迂迂逆
D0 达连迖郖郱郖郗郈陆陛阼阺陃陋俠傿
E0 偰㑊偟俀俔傳俋伜傀俇佸傽㑇㑇俶
F0 剄剉勊劼簺虒庴蓙蕈廛喧啈咭唯哏

CE40 - CEFF

40 唡荀咷咪咔咶嗚哆冒皆喦嚚咾吡哞哃
50 垵垎垟垙垌垗埈垛堊嶽埕垗垴坲垚堻荳
60 㚆奓婐媂媗娥婄姝娍妭姱始垢娒婄婤
70 婝姁猁婀娃梨婜嬔屑岹㟇峑㟆峋峤莉
80
90
A0 　㟡㟰㟢峇皂峻㟩峼峖峿峈喜峇城蚤
B0 㣅㣈希周庳寿庢庛庲厐羍㢒㢇洒戀
C0 㤟㤝怲慎佬恓惶悄恒怳㤈恂恂怹怡怵
D0 㤜伀㴒侷擎挍掊挎掶掁摸挏挌挼挗
E0 振挼㧜挾揖挩祉攷敃㫈斿㬟㬛㬟晄呢㬏
F0 㿑㬊映昫鼻备累㿒㿑曻胐胸柁柲桦栺

CF40 - CFFF

40 柜㭷杯㭜柀枷枙柿柤椖㭤㭀枳枧栖柫
50 㭛枪桍栎㭁柰桀柷拉㭟桐㭣柤栟枵杺
60 柊柃㭅柋歈㭡㭣㭲毘㼤氫氃浟沂㳐㳺
70 溃㳠㳚洒㳓㳒洄洙洺㳻㳾㳿洏浺浌浹
80
90
A0 　洁涛涅涘洂㳿油㳪涫洫洺㳲洐㳳洹
B0 㶼㶵焛焷煤㶖胊胖㶸䪞轴㭮㽑臭狝
C0 狨狥狟狪猵狁狓㺋珂珈坤玹玶玵㘉㺓
D0 珰珇珱珊珔珀瓿瓮㽞盷㽷痕疰㿎盏
E0 眈眕眧䀹眊眴盻斫短妖砄砑砒砆砍砐
F0 砟春研砭祊神㳖祅砎秕秭秖秎笔

Code Pare 980 Traditional Chinese (Cont.)

D040 - D0FF

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40  突竝竺笁粠粦粧籿粡籵糾糼�紮罘夌窐
50  犴耆奘耏籽奪胘腓胅胣股胂脰胅肤脑胙脿
60  胜胸胕胉胏�映胍盉肛豘芏芯葊茭苞
70  萧苕芫苦茁苴茵芨苲荚往符茶荶荺
80
90
A0      苤莫莓茇莂虷虴虵虯疘衍衦衵衼衩舯
B0  尩莔赹迣迱迮迠邦邞郝郋郅邾邜郇郎郎
C0  釔釚阹陏耏跨咚陳惊悴倪倓倢倰倛倰
D0  倰傳徐倬俶俾倗倜倠佫倣倐倛倎党馭
E0  萫清褻涵淨佺尗蕳劐刣剤剴剹荆剻勍萲屏
F0  咮啈哇咽咮听嗒嗳哿呗哴喝呝唑哈哞
```

D140 - D1FF

```
40  唊嗶哱咬唂喇唃哺圊圂埌聖埕埡垺埍
50  涏堡垸埣埑埇嫚埖埞夒喪嬺婭婇媞婇
60  媢婜媢姲娳姦宧窖宬尊犀屺岫峹峟猫
70  峜嵐舍峭悅摩廀胺疪痙弱弨彧怒恚恋
80
90
A0      恁悢恍桶悒悁悝悃悕悛怴悗悇悍恇
B0  屗搴犚挢挵挼捅捐捃抑挹挳捍挳挀捗
C0  挴捗捰掉掕拣挳拫挵拺捿捒捈拯攰敂斾
D0  斺斿斿旺晟晢晜晌眺拼枎柀梼梠栳栻椱
E0  枾栖枃楝棛柈栭桷桱桃桝桮桺絜枡枎
F0  桕椅桤柔榘欮欥歕欨歙歗峙殫殂耗毿
```

D240 - D2FF

```
40  铣塈翈钺氜沖浣泫浑湻淽浧淝湼湲浯
50  涷漄清湨沶泦浧浠浼浂浖浼涂涘滶洙
60  泆涑混鸿涘涵涠浚澎浼烜烓烑烝烋烠熙
70  烆焃炥烍焐炯烧灿炘烶焓熒羮羴羪
80
90
A0      牷犎鸩獪狌狥猶徐犻狪玫玧珥珫珉
B0  珧珣玡珜瑾珬珔珬珌珖珤胅胞瓶瓪
C0  牲畛畟珪疧疰痀瘰疰症疗盽盂眝眛眐
D0  眨眪眜瓂眵眢瞁眥晳昭砒砿砢砵砐磐
E0  硅硟硴砒碕砕衱祛祐祜衻秷稻秼秔秬秅
F0  秬稵秖秖秞秴窑窎窖窞窩窀窇昫竻
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D340 - D3FF

```
40  笌笇笈笀笇笓笗笥笝粅粑粜粫粗粍粅
50  粃糺粯粄粢紇糾紆紾紦紤斜糺窒罜罥罠
60  罘殺粉翋翂翀敉敔耹胶胑胚胉肵脪膋
70  舁舯舥茳芟荄荶苗荁荖莃萛菂荱荿
80
90
A0      萶蒌莫莞茈萌莜荂荂茮荨荟荮荅
B0  荌荓莣荘荷荓廐蚫蚨虮虵蚏虬蚏虯
C0  蚗蚆蚋蚳蚍蚶蚙蚑蚕蚘蚗蚗蚹蚳怀
D0  胇袄袇衲袘衱衳衶裂衾枕衼訓虹訵
E0  豻馳贲赶赳赹屹盱軼大帆迾逈逌迻逢
F0  逪逬邧郧郿邨邜郎郋邳郭郜郜酐
```

D440 - D4FF

```
40  酎酏釘釓釚陜陟隼釘髟彅乿契僵偡偼
50  偠偓�︁偕偲偍偍偁偅偁偃偤偺偋偆倷侍
60  偣偭偆偀偶偰偮偾偮剭凰剹剳剦勖勑覿
70  蝨咬啶喹喕啐哓嗶嗹啩哑啫唫唵喇唕�
80
90
A0      唌唲啥辒唹啐啩唊唑唲圉圗埻埈埳
B0  執埑埴埛埭垰塒塖埘垃埏蓋埌坈埣堉
C0  堙埡埭埈埴塸坤埾坎堽塊塊斐婚婽
D0  婕婧婷婞媆婐娳婀婭婓婳娷娹娂娺
E0  婄婛婇婸婥嫇嫯嫅婌婒矮姚婦娶娾
F0  孫蓴宋屌崞崋崪峥崵嵈嵷崏崌峽崦崢嵋
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D540 - D5FF

```
40  崿崒婁釜宜媎悵麥唐廥庼庫骕弸徛徥
50  徜恖愁悉悾悰宧惓悀惏偯偘惙悰惏愂
60  惧惊惝惾惀惀掌捥掊掂焠挬掞捒掝掂
70  撇掎掤掇掐据揹換掞摔揙掺掤掤掟
80
90
A0      掾搏搹掑挸掉敁旍晥晡晛晙昴晢脍
B0  桹橾椌栚槢桮椃梼楆梂桯桲梱桵桴梲
C0  梏桶桰梥梢梐椏椢楎槂桹梮桷桳桄栥
D0  稀棒梂桵椛亝歌歃欶歂殈歾殍歾殓殭毱
E0  淀湡浼淀泏淬淩凌減凍淶湢浌涃溌洃淖
F0  渣渌湖浥湁淙渞滔滔涺淪涾湦溥渫渠
```

D640 - D6FF

```
40  渂淲涝淉淘渮涗淦烺焵烷焗煆焌烰焄
50  煸焴烼焆焗焓熔烻熒焌焎焐捂焾焷焆
60  焷掎狼猩猦猚猖猕猬猻珸瑈珸珵瑄珬
70  珽珿珚琚琪珳瑆琛琋珼时盧痎瘁痌
80
90
A0      痁痟瘃痷痳眳眊胅映眛眭曀珥晌眗眽
B0  皆眹眵硈硒硨硯礎硌砦硅硐祤祧祩祪
C0  祆袞砦袚禼秸稈稌稈窠窒范竻笴笜笧
D0  筬筶筎笴筲筍笀笒笓笓笄管窴筁筘粘
E0  粖糺紵紷祛紺絅紬絑絗絇紷絈絊絉袂
F0  紂罣恔羜罜盖翊狨狨狮狓娶翏翀粗
```

D740 - D7FF

```
40  粏粨耵聣勔睆胅胅脛脛脬脟脞腄腕朘
50  脾腜碃硐舳舳胙胙舲羷洈莕莫荶玙荳菡
60  荴莏莅莕惹菡苹荽烯琜荃莚袗荘菱
70  猙沫漤蕈崁戝脊莇莫崎萰廔摩蚙蛷
80
90
A0      蚊蛆蚧蚺蛑蚨蚍蚚蚲蚴蛰蛴蛃虻
B0  蚲袎花袄衿衼袪袚袙招袙袪袙袛袗
C0  表裹裹袓衮覀臹觖觑觙觝訝訬訜訩訮
D0  犯貀魟趏趇趉趼肢趺趹肥軖豠毤軝軷毀
E0  軒軡迻遘逑遁逳迼逶郷鄿郋邴郖郒郔鄆
F0  郜郒酨酘酚酓酏釬釱釱釓釥釢釨釪
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Code Pare 950 Traditional Chinese (Cont.)

D840 - D8FF

| | |
|---|---|
| 40 | 鈞釾釿釳鈈鬧鬨隌隑陫陶綸惟靪頎釶 |
| 50 | 尳傖傕傃傂傳�傫傮傹僊傺傽傿僆僼 |
| 60 | 烌傖匒傽訵菻臏唔唬唭嗲唒啝啚啖嗏啛唒 |
| 70 | 喵嗎焻嗒嗹唌唨听啹啺嗋啹嗋嗗啚堷啫 |
| 80 | |
| 90 | |
| A0 | 堙堞堨堛堭蝕墊堁堌堳城埥埗堭 |
| B0 | 埵堟堬堻塈堺媔媕媖娿媬媊媥嫚媏媟娸 |
| C0 | 媢媬娮媌媜媟媄胡媋娵媘媗媗媓嫛嫈 |
| D0 | 寎窛寏寋痀尌厨尗岹峢岻嵂嶇嶍屼嵢 |
| E0 | 嵤岪峻崵嵑崶崗尗巁崤嵼嵪崸嵲崵尌 |
| F0 | 恎鹹幄幁彘徦徖徛忂憲愸忲惎惄惝惶 |

D940 - D9FF

| | |
|---|---|
| 40 | 惲愊愖惵愓愠愞惼恿愙悀惺愇恛愐愄 |
| 50 | 愫慐擊桑掂揁掋掵扝揃揭搠撌揶揶揓 |
| 60 | 揀揵揩揫揢撗揻揰抛撘揊揌掱揮揰 |
| 70 | 揞揙敁敃敜敠敨敩斌羿斞斳旘旇 |
| 80 | |
| 90 | |
| A0 | 晼晬晻眰暘暘晲晵椌椕椫棤椏椛椿 |
| B0 | 椓棱椏棡椒椔棯椵楉椶棡椇棖梱楑 |
| C0 | 椸棑棆棆椝棃棌棽棼棫棤棔椮椬楇栖 |
| D0 | 榑椡椵棑棡椙棩棫柀棁敧敮敦歽殕殖 |
| E0 | 殥殘毀毵毲毿湊湆湆淖湍渼湽澟 |
| F0 | 湢渼湒湁湝湳湨湋湺湠湈湑湵湁渲 |

DA40 - DAFF

| | |
|---|---|
| 40 | 湨湜湡湴湠湶湠湫湞湑涫渟渹涾涾涺湤 |
| 50 | 湏淶湩湲湦湽湽湹焯焯涏焮焱烑焼 |
| 60 | 焢焠焛焬焥焝炱掌棬焞焥焠焟焱焱澳 |
| 70 | 猢猱猡猧猭猵猲狄琮琬琰珜瑃瑂 |
| 80 | |
| 90 | |
| A0 | 琚琬珠瑚珺琤瑀琱珴珤瓶瓻畯畲痧 |
| B0 | 痧痡痯痤痤痮痧皽皽睉睄皯眫睅睄 |
| C0 | 睉睋睆睈睇砢硦砨碗碮砸碉硃硌硪硨 |
| D0 | 硳硳礥礥褛禂稂稊稃稌稞稡竑竤笒笕 |
| E0 | 筦筭筌筎筀笰粫柶粐籸紶紩紶絅紝絑 |
| F0 | 絧絪絾絫絜紸紲紩絩絏絎絏絍絎皕冐 |

DB40 - DBFF

| | |
|---|---|
| 40 | 羿羢羠翎聅聅酖聀聅腊腁腏腰腉脽 |
| 50 | 脤脺脝臮觌觖莥觓輠莥莥莥菏萡荎 |
| 60 | 菀菨莵菤菾葷蓮菣菣菣茋菝菥 |
| 70 | 菘菿菡菭蕙菖菜菕菢菥菷萑菂菳 |
| 80 | |
| 90 | |
| A0 | 蒶蒭菇蒥菅萱萱萑萇菻菭菀菖菅 |
| B0 | 恭蛘蚄蟆蚑蛄蚸蟄蜘蛻蟯菨蚳蚥蚰蚌 |
| C0 | 衉衕衚衭袥袘袍袥袮袵袼袷衯裒裒褪 |
| D0 | 覌覘覤觓舿舡舿訵訵訵訵訵詥訥詒 |
| E0 | 誉訑訐訏詢詤詖詆貤胦貣貹賫趕趉趄 |
| F0 | 跘跓跕跬跖跰跚跕趾趸趼趹軒軡輄 |

DC40 - DCFF

| | |
|---|---|
| 40 | 軹軔軼軥軒軧軨軫軤軱釿軨軦軦遉逶逑 |
| 50 | 鄇鄥鄣鄦鄡鄫鄠鄭郜鄀郿郹郿都郡酡酤酤 |
| 60 | 酢酊釞釙釻釰鈃鈲鈇鈤鈊鈇鈀鈒鈏鈏鈄 |
| 70 | 鈧鈂鈦鉏鈙鈕鈅釾閉閊閆瞮陕陕限 |
| 80 | |
| 90 | |
| A0 | 陧隃陻雉雈雁雺雺軒軓靪頂髟飫氂 |
| B0 | 耑耡奡壴偉偆僐僧傮僄傴傻儥俻悆傼 |
| C0 | 從傯僉侕傶傼剼剚剦劏剆剚嗒嗤嗞嗠嗠 |
| D0 | 嗐嗀嗔嗑嗺嗒喙噠啲喠噁喔嗒嗖啝嗙 |
| E0 | 嗂圐塓塏塣墇塍塩塯塳塎塪塐塪塊堙 |
| F0 | 墀墅墼墺娿嫀媴媢媬塍媢媿煣嫈嫔婚 |

DD40 - DDFF

| | |
|---|---|
| 40 | 嫆嫝嫗嫭嫟嫭媲蝟寅疝尵楦嶮嶒嵮嵮嵮 |
| 50 | 嵑嵣嵈嵞嵨嵘嵨嵾嵺嵑幍幍幋廔廇廔 |
| 60 | 廑廮毃徯徱徱恄愴愫愻愢愱愷愶慢愲愩 |
| 70 | 慞憄戠戠戠戠戠搴擊擎揙搒搒揙搯搷 |
| 80 | |
| 90 | |
| A0 | 搯摃揰搳揰搞搗搳搣搣搯搳摱摱摱 |
| B0 | 搯搒搯搗搯搯搹揅揉揰揲揰搩搻搻搹 |
| C0 | 晼暕暲暳晻晻晜暆暆楦椫椬楬楦楳椿 |
| D0 | 楅楪楬楂楗椝楙椨椢楛椻椱楬椣楥楸揪 |
| E0 | 椻楩楄楉楄棽棽椺椣椸榗槸槣槸槸椻楔 |
| F0 | 楟棔椺楦楑歆歄歅歃歆歅殛殻毈毷毷 |

DE40 - DEFF

| | |
|---|---|
| 40 | 毹毷毺湬湲湰湰湰湬湳湰湰湬湒湲湳湭滒 |
| 50 | 滓湐湰湰瀾湰湰湰湰漮湰湰湰湬湒湒湰 |
| 60 | 湵湰湰湰湰湰湰湰湮湰湰湰湰湰湈湰湰 |
| 70 | 湰湰湰湰湰湰湰湰湰湰湰湰湰湰湰湰 |
| 80 | |
| 90 | |
| A0 | 煗焲焲焐焵焵焚焵焵料焷焵焵焵焵焵 |
| B0 | 焵焵焵焵焵焵焵焵焵焵焵焵焵焵焵焵 |
| C0 | 瓸瓹瓺瓻瓼瓽瓿甀甂甃甄甆甇甈甉 |
| D0 | 疶疷疸疺疻疼疾病痀痁痂痃痄病痆症 |
| E0 | 睔睕睖睗睘睙睚睛睜睝睞睟睠睡睢督 |
| F0 | 碈碉碊碋碌碍碎碏碐碑碒碓碔碕碖碗 |

DF40 - DFFF

| | |
|---|---|
| 40 | 稫稬窢窣窤窥窦窧窨窩窪窫窬窭窮窯 |
| 50 | 窰窱窲窳窴窵窶窷窸窹窺窻窼窽窾窿 |
| 60 | 竀竁竂竃竄竅竆竇竈竉竊竌竍竎竏竐 |
| 70 | 竑竒竓竔竕竖竗竘站竚竛竜竝竞竟竡 |
| A0 | 腄腅腆腇腈腉腊腋腌腍腎腏腐腒腓腔 |
| B0 | 腕腖腗腘腙腚腛腜腝腞腟腡腢腣腤腥 |
| C0 | 腦腧腨腩腪腫腬腭腮腯腰腲腳腴腵腶 |
| D0 | 腷腸腹腺腻腼腽腾腿膀膁膂膃膄膅膆 |
| E0 | 膇膈膉膊膋膌膍膎膏膐膑膒膓膔膕膖 |
| F0 | 膗膘膙膚膛膜膝膞膟膠膡膢膣膤膥膦 |

Code Pare 950 Traditional Chinese (Cont.)

E040 - E0FF

40 餎鬵鶖鴭觕訕誆誆訮訛詷詉誅詋詥詽
50 詶詺詷誊詨狠豢狟犎狄贠衃艴赸趄
60 趆趌趍赺翅超趏胰陡時趾趾踼跣踤
70 跮跲躨酊较䡄䡄斬辂軖軔䡄轝䢃遏
80
90
A0 迿遺遻郶䢴鄏鄋鄖鄔郶鄃酮酯鉈銈
B0 鉺鈺鉦鈳鈮鉽鉽鉻銛鉏鉅鉬鉬鈌鍬鉨
C0 鈶鈒銅銀鈀鉆鈻鉆鈺鉾鉖鉄鈝鈶鉀鈬
D0 閁隒隓隗隹燹孚睿冀斬軒㲒軐頄頏
E0 頃𣇄鉍釰䣓䢴駒駉奔䡄䡄刧鴈鴈毘塵鄘
F0 傲傳傄僨僳傲僑僯僯僮债儶兞傶傜番

E140 - E1FF

40 漸剭劄勘勘匰𥥌嗺嗎嗥嚜嗅嗽喅喊嗰
50 眲嘖喍喿喰嘻墒埲墐垰堷墁墂坍坴塵
60 壇墒墹埭壌埙垵竮蛍涫堾婷婷嫊嫋
70 嫚嫿嫑娑娑嫛娶嬈嬉嫉嫕嬠嬭辇妻
80
90
A0 𡨝羼崈嶂岾嵼嵼嶃嶁嶝嶁嵕崔崹崇嵾嵶
B0 強𢬵愔愥鹿蘆廁傾廧隆裏廄廋彊彈
C0 影徹愬愬愍彰𡪡挃徑憬㮃憀惨慉慎懷
D0 懢慥愁怔恢閿瞥鈙馘䜌揹搞搋撟塼㪛
E0 搔環搣瓢撘摎撟㯱㨪揦掻摕摁捨辭境
F0 撅捷揚操敤犖矃礜暗蝎䡄墅褈糖柣

E240 - E2FF

40 楥槌毂楮槇梪塼榙榎㮃橺橇稓椊橙椣
50 槈榢榑槐槊椿槏椻椻橜椼椂槇楃椺榡
60 楷槐枸歆歆歀㱝殂殞㲚毃毃髭桼滗滼滐
70 滢滸㴉滮漉㴉㴖瀇㴘滃㴞㴈瀄涚渃湀
80
90
A0 㴑㴣漗㴘漛溇湖㴇漱㴎㴘㴘滃㴇㴛溂
B0 㴇瀇㴇涴㴤㴀㴇溄湤㵒㶱烆燼熰熳
C0 薰𤋮炝熿腤磅腬犕犗籔獣竟㴎㴘瑢瑳
D0 瑱瑶瑲㻩甄甀甋甋甮㪗瘚瘩㴎瘕瘕
E0 瘈皷皷睘睙睂瞆瞖瞖晘瞄砡磛磛碭磒
F0 磢磩礜磛磚磡磡禘裎禋祺禈褆禓

E340 - E3FF

40 祖禈祿福槩稯稷稫稫穵窠窛㴎㴎窂
50 籹簄箐簶笽簕笢箄窚笧簅簶莱粮粿
60 絖紳綌粹紟絭綪綫綾絥紸綛絼綍緋綾
70 絇絡綖綼縓綦縈綡綢緆綐翩翏翳義獟
80
90
A0 䊄䐏聤聢胨腦脂脃臍臂肷涎淁㴎劳菊
B0 莡萫糞萇菨菨慕兼朔薆莟葶萬蒲蘀蒝葳
C0 翡蒃時菁葵䓘䓊䓊䓚蕚䓊䓊荵荵徒荙
D0 莘䓊䓊䓚叟蜱蛜蜱蜍蜍蛈蜡蟖蝻蟖
E0 蜩蛬蜾蚌蜎蜍蜍蜻蜺蜺蜱蝴蝦輪蜺
F0 蟿蜷蜌聖蟹裣衸𥮲補袡裙褟禓緋裟

E440 - E4FF

40 襗褄襯琁琁瑅覝献觫觫諕譹誙謒謜諕詩
50 諮豨豠䝶䝶睥䞃跟踔胜䮦跼踴蛸踷跤
60 蔻蓬跟踤䡄䡄䡄䡄郫䣓䣓䣓郫䣓鄖鄘鄭
70 鄘鄭酺酲酳酳酶䤵鉌鉐䤵鉦鉬鉬鉌䤵

80
90
A0 䤵鉳鉽餕鈷給鈤鈲鋻䤵銲鉆鈵鈫鈾鉔
B0 鈫鋿銪銱銚銲鉬銰銚鈺䤸䤵隞陸霓䤵幹
C0 䤵軜軓軠軐組鞄䡄勒駸㪗頪飏䴕鉬飮
D0 䤵䤵配㪗㪗䏄䡄㶱霅䤵䯉𧾷㮃𪓆㪗託
E0 釣釭瑪𨺙鴗䡄塞宜𧾷禁徼儨偭傻僑儆
F0 僼僟劇劇勱勱勫嗽嗥嗥嗎嚟嚖嚚嗥嗽

E540 - E5FF

40 嚆嗥嘖嗀嗮嘾嘸嘾嘺圓增撓㪗墇㪗㪗
50 隆墿墿嫿婷嫽嫿嫿婪嬉嬂嬈嬔燈嬅嫧
60 婥㴘嶙嶗嶙嶒嶗嶱嶯嶙㪗㪗㪗隆㪗嗥
70 嘸幪㴈㴀廄廄㪗褌悝愋愬愬愉㪗㪗彭
80
90
A0 懌懟懂憬㤲慎悗㤲㤲僑愁㴎搒摯㪗撒
B0 撖撅搶㪗揙捵㪗撣撢摘揮揓搭㪗敨敤
C0 夐斳斳暵㪗晱暗晅晴暎暎楠槁橋樃橅橬
D0 橪梿樰橦橛橏橪橖橚樓橣㪗橚模槼槼㪗
E0 橈橋橖橩橽㪗棶橪樌橨橣橖柱橶橏橲喬
F0 欪殞薀瀸殠殠㲚毻毻鬔頒㪗㴎㴠㴠頒

E640 - E6FF

40 澍澈澌瀆㴎澄㴎潤渼澤澂瀆海㴎㵢澟漢
50 㴉㴛瀹㴘㴘潳潛潲潳潯㴉瀫㴀㴉㴀㴉濠
60 潲㴘潁㴘瀀熰熿熿熿㴀瀀熰燀熼燀熰㶱
70 㶱炎燆摩犀槳㴎獚㴘㴇獝㴇㴇㶱獉徼
80
90
A0 㴘璇璉璃瑮㴘瑽璈璈璈㴘瑳㴎甎甐晶瘤
B0 瘂瘂瘇瘃瘓瘀瘀瘀瘅睈睋睴睕甄甑睷瞚
C0 磇磒磡磡礎磚磔磈磈磉磈禐㴘磀磝禐
D0 禛嵗穯㴎窭窛施篋箭㴘莭莭㴘㴖㴠㴠
E0 稖楥㴘㴎絥綑縰縛緔絕絹緔緧緧緢緢㴠
F0 縺㴙緐緐緐緐緐緐緐緐緐緐緐緐緐緐緐

E740 - E7FF

40 膊䏄膟膰腈鋪腤腤腤腤腤腤膣腤腤莭郶
50 㴠㴠㴠麓族㴠㴠㴠㴠㴠麋麋麋㴠㴠薪蕇
60 㴠㴠㴠薺蘩蔡蕆菌蔥薱莭菜䓊菜萋㴠
70 確薮萬䓊薪徙淁御蓼蓬㴠澀旆蘋覥
80
90
A0 蟷蟻蟾蟳蝸蟳蟳蝳㴠蜮蝳嵣蟹螟螟蜺
B0 㴠㴠蝎蟳㴠㴠㴠螻蟳㴠蟳蟀螞蟳㴠螟蜺
C0 蟺術褌禈福裸裸祼禈褆禓褆褆褆褆覝覝
D0 覢觟觟觟謅謤諳諗諏謅諕諕諗諰聞郫菁
E0 諕㴠誺謁謁謅㴠翠䡄謯賨賨賨㴠㴠趕
F0 趞越趄腕踤踤踤踮踕踤踖踤琪賿跱跺

Code Pare 950 Traditional Chinese (Cont.)

E840 - E8FF

| | |
|---|---|
| 40 | 踔踜腳雖踐跲踘踔輳較較輫輖輖輗輗濣 |
| 50 | 遊�達激鄭鄫鄐鄪鄲鄦鄭酤酨酸酸酗林 |
| 60 | 酶酛鉱銀鋛鋀鋙鋈鋏鉽鋟鋂鉲鋼鋝鋋鋌 |
| 70 | 鋯鋘鋨鉛鋬鋕鋼鋒鋯鍊鋠錘銧鋄鋩鋂 |
| 80 | |
| 90 | |
| A0 | 鋺鋿鋈鋈鮒鬧鬧鬧鬧鬧鬧讀陵雜奮滿滐 |
| B0 | 靚鞀頼鋿韐鵌韺韺頍頍頍頍頣頔頔磡娑 |
| C0 | 孲婷餔鉔鍊餕駞駘駌駍靵靵駘駘駟駠駠 |
| D0 | 髣駕髤髬髩髮髪髱髮駝靮魟魡魟魟魟魞紛 |
| E0 | 敎駍魟魟魟鷷鳰鳰瑪鴉魛鳰鳰鳰鳰鷹騰鳰鳰 |
| F0 | 麃黙黽柹寍廬儗夢傺熙匼睿唯噰嗖 |

E940 - E9FF

| | |
|---|---|
| 40 | 嚘嘍嚩敺噲嗛嗷啚圚填墩壏壥圍埦壁墼 |
| 50 | 壄塤嬗嬏嫛嫺嫩婞嬖嬸嬱婐壚嬌嵥嶼嶼 |
| 60 | 嶽嶂嵻嶕峻嶪嶼嶍嶷鼗嶭嶮嶀簹廩 |
| 70 | 廥廦廯廥張徶憨憨憼懐惘幜懷懥憻 |
| 80 | |
| 90 | |
| A0 | 憿憸憼擗摿摿摿摿擊攆摿摿摿撥 |
| B0 | 敿敼黆眴敼睻暲暲皬睰暥睴睠瞳橄橇 |
| C0 | 橤槒槸樾欀欀枺椕椩椩橺槒椩楁榶 |
| D0 | 燊橐槸橚梲橜榶欀欀楁楁榶欀歆歆 |
| E0 | 歈歈殨殫殥殻殦毚毺灩澁淬潽辟濶濶 |
| F0 | 潞涵濾澍滅濚濔漍澮濤潗潗潗潗濇潗 |

EA40 - EAFF

| | |
|---|---|
| 40 | 澢澔潽潗潗潗燊焆燀燆燉燀燆燁燂燉燔 |
| 50 | 桑烱煴燆燈燬焱熳憧橚燶獚獝獡獛 |
| 60 | 獏獥瑿珸瑤瑯琁瑢瑍甋甋甀甀甀甀甀甀 |
| 70 | 瀷瀺澁凜敔盦瞛瞝瞙曂瞛聡聰睴瞙 |
| 80 | |
| 90 | |
| A0 | 瞜磝砶礦礍硼磖磘硠磣磣磘稠稌 |
| B0 | 糜穇窶窆窩窔篰篲勞篖篲箥篖篐篴篴 |
| C0 | 簧簅簧糸糵笓箳糲糭糳糳糳糸糸糸糸 |
| D0 | 緭糳緪緤緵緜縢糽糵縍縍縍糵糵糵 |
| E0 | 蔚羃翼翓翲糄翰瞮蟺曉瞔膆膡膍膡 |
| F0 | 臃臃臑臖朡艵艖艖艖艖葍葤葊葊蕘蕘 |

EB40 - EBFF

| | |
|---|---|
| 40 | 蕀蕆蕘蕚黃蕵蕑蕲葬蕵稨稹蕘葩蕘蕘獚 |
| 50 | 覆蔞獝獦穤蕛蕛虩蕛蚭蛣蚭蛝蝽蝽螂螚輨 |
| 60 | 蝝蝗蜻蝽蝽蝽蝽蝽蝽蛝蝽蝽蝽蝽螚蜻 |
| 70 | 褆褆褭褱褱褱褱褱裦褣褛褙褝褝褶褶衜 |
| 80 | |
| 90 | |
| A0 | 諢諠誠諵諵諢諢諢諲諲諦諚諢諢謮 |
| B0 | 諻貇貒貒賭賁腫賭貶頙頙超趚踦踦踼 |
| C0 | 踥踏踶踼踽蹁踰趴腥踜踜踜踜踜踜踜踜 |
| D0 | 遠遶逆遼廻鄖鄖鄐酴酺酳酴酳酺鎍鎝鎎 |
| E0 | 鎼鎐鎐鎔鎝鎝鎱鎸鎂鎝鎞鎞鎝鎝鎞鎝 |
| F0 | 鎼鎝鎱鎰鎩鎝鎿鎼鎝鎝鎝鎝鎝鎝鎝 |

EC40 - ECFF

| | |
|---|---|
| 40 | 鎩鉤鎍鎛鎏鎏闢闢闢闢闢闢闢闢闢闢隩 |
| 50 | 雖雙黔雫鮙儵鞕鞒鞤鞤韺頙頙餤餤餤餤 |
| 60 | 馠馼馼馼廐馼馼馼馼馼馼馼馼馼馼鬗馽 |
| 70 | 髳髽髬髭髸髴髴魟魟魟鮒魟魟魟魞魟鮚鮚 |
| 80 | |
| 90 | |
| A0 | 鮒魟魟鳰鳰鳰鳰鳰鳰鳰鳰鳰鳰鳰鳰鳰鳰 |
| B0 | 鳰鳰鳰麳麳麳黁黁黁黁黁齙廘廘廘勏 |
| C0 | 嗏嗏嘪嘪嘪嘪嘪嘪嘪墇墇壔壔嫻燿 |
| D0 | 孲嫿嫻孈孈嫠孖孈孖孖孖懁懁徶遣憨 |
| E0 | 懟懟憟憸憸憸憸懞懞懞懞懞擈擈敼敼 |
| F0 | 廥旟敼橶橛橜橜橜橜檀廻橜橜橜橜橜 |

ED40 - EDFF

| | |
|---|---|
| 40 | 槃樔橫橚橴橴橴樵橶橶櫆橶薰欨殠毻毻毻 |
| 50 | 潆瀾澣漉漉渚澟鼻殻湊潗爜燜潗潗潗 |
| 60 | 潗煖煖獝獝獝瑩瑮瑬瑺瑬潗潗珰瑺瓶 |
| 70 | 瓿瓿甋甋甀甀甀甀甀甀甀甀甀甀甀甀甀 |
| 80 | |
| 90 | |
| A0 | 睴瞕暵磳磽磹磹磹磹磹磹碑磹磹禮 |
| B0 | 禨稑稑機稑稑橚稑稑簔簔簔簔簔糵糵 |
| C0 | 糈糵糵糵糳糵糵糵糵糵糵糵糵糵糵糵 |
| D0 | 縞縞縞縞糵糵糵糵糵糵糵糵糵糵糵糵 |
| E0 | 縺糵糵糵糵糵糵糵糵糵膆膆膆膆膆膡 |
| F0 | 膆膆膆膆膆膡膡膡膡蕘蕘蕘蕘蕘蕘蕘 |

EE40 - EEFF

| | |
|---|---|
| 40 | 預蕛葳蕛蕛蕛蕛蕛蕛蕛蕛蕛蕛蕛蕛蕛 |
| 50 | 蕛蕛蕛蕛蕛蕛蛝蛝蛝蛝蛝蛝蛝蛝蛝蛝 |
| 60 | 蜻蜻蜻蜻蜻蜻蛝蜻蜻蜻蜻蜻蜻蜻蜻蜻 |
| 70 | 褛褛褛褛褛褛褛褛褛褛覞褛褛褛褛褛 |
| 80 | |
| 90 | |
| A0 | 諢諢諢諢諢諢諢諢諢諢諢諢諢諢諢 |
| B0 | 諢諢諢貒貒貒貒貒貒貒貒貒貒貒貒貒 |
| C0 | 趚趚趚趚踜踜踜踜踜踜踜踜踜踜踜踜 |
| D0 | 鎍鎝鎝鎝鎝鎝鎝鎝鎝鎝鎝鎝鎝鎝鎝 |
| E0 | 鎝鎝鎝鎝鎝鎝鎝鎝鎝鎝鎝鎝鎝鎝鎝 |
| F0 | 闢闢闢闢闢闢闢闢闢闢闢闢闢闢闢 |

EF40 - EFFF

| | |
|---|---|
| 40 | 鞏鞕鞒韺頙頙頙頙顧顧頙頙餤餤餤餤餤 |
| 50 | 餤餤餤餤餤馼馼馼馼駠駠駠駠駟駟駠駠 |
| 60 | 駠駠駟駟駟髴髴髴魟魞魟魟魞魟魟魟魟 |
| 70 | 魞魞魞魞魞鳰鳰鳰鳰鳰鳰鳰鳰鳰鳰鳰 |
| 80 | |
| 90 | |
| A0 | 鳰鳰鳰鳰鳰鳰鳰鳰鳰鳰鳰鳰麳麳麳 |
| B0 | 黁黁黁黁黁黁黁齙齙齙齙齙齙齙齙 |
| C0 | 嘪嘪嘪嘪嘪嘪嘪嘪嘪嘪嘪嘪嘪嘪嘪 |
| D0 | 懟懟懟懟懞懞懞懞懞懞懞橜橜橜橜 |
| E0 | 橜橜橜橜橜橶橶橶橶橶潗潗潗潗潗潗 |
| F0 | 潗潗潗潗潗潗潗潗潗潗潗潗潗潗潗 |

Code Pare 950 Traditional Chinese (Cont.)

F040 - F0FF

| | |
|---|---|
| 40 | 璸璹璊瓊瑎瓈璻瑾瓵甓瓱瓸瓼甌甋瓤甑 |
| 50 | 甃甈皼盩睲瞶磀皭皫礅皦甇磉礳祿襘 |
| 60 | 稶潙勞稘簀籊簉簗箐簝窞簷簞緯緫緻 |
| 70 | 繧綹繢繟繑繄緋緰緵繢繙翾翶翸賵瞔膟 |
| 80 | |
| 90 | |
| A0 | 臉爐艆萆蓁葵萩漿遠藘蒩萸菾蒜螷 |
| B0 | 蓋蕊蕀尌荁稿磂溧蕓薾虬蚧蝪蟇蝪蟬 |
| C0 | 蠉蠆蟮螻螺蟒蠑蠌蟥蠵蝏蟍蟄蝨 |
| D0 | 墅蟝襖禠褌褝襆褮褌禰襉褍諤祤諝詔 |
| E0 | 諝謘諄譺諉謷譬謗譸諫譹詝謷謷謬雜 |
| F0 | 貆貕豲豮賾賮賸贎賮賮賵賵趵趼趭趹 |

F140 - F1FF

| | |
|---|---|
| 40 | 蹿蹿蹣跎蹗躞軿軵踜軼輰躗鄞鄙鄸醨醹 |
| 50 | 醹醢醪鋑鏻鋼鋽鐏銡鎴鐟鍀緅鎴鐳錯 |
| 60 | 鎈鈰鋐鋳鑕鑫鋭鋑鏻錴鐜鋀鐏鬧闉闇鄦 |
| 70 | 韓鞪醟醤腰雕貫痕霚雖魺魺鞀鵳龌鳌 |
| 80 | |
| 90 | |
| A0 | 鞌韓鞾韑韯韑餝餝顅顃頑顈靋齿鍊鞆駼 |
| B0 | 駊駌駯駯駠駣雖騎駒駾胡駲駵駩騎駧闣 |
| C0 | 魅魅魅魅鯆鮚鮰鯆鮯鯢鮼觡觡魛魶魶鯵 |
| D0 | 鯵鯵魱魱鵑鴟鴭缢缢魴魿鮱鵽鴟鴇鼟蕖 |
| E0 | 駖嶻窀豰豰豴豴鮿豵裏豲勄勍豿 |
| F0 | 噻噛噰噓噚壢壝墛嫑嫚嫚嫨巃帷 |

F240 - F2FF

| | |
|---|---|
| 40 | 儱儭搗攃攊攉搨檪旇旆曧楫楙楎楄 |
| 50 | 檣楊楋欙桑櫗橵橖歈殯氈氿瀟瀟瀠瀿 |
| 60 | 瀂瀇瀍瀯瀬瀅瀔瀱瀝瀖瀞爇爩爆懥慄 |
| 70 | 懤懰牂瓓瓗瑌墍瓥瘂瞶睸瞒睸瀀磄磓 |
| 80 | |
| 90 | |
| A0 | 磠礜礦礦禰穜稙稘稿稵稓襸糷糸糳繏繺 |
| B0 | 繏縱繷繻繰繺繲紧繸繨繄縈縬繿繝羿 |
| C0 | 膹膞膢膌膵膣臕蕀蒐蓝薮薖蓝麻蒼蕯窴薭 |
| D0 | 蕼蕜蕫蕼薆薏薊薺薇薻墵壙廎蝏蟷 |
| E0 | 蟷蟹蠋蟿蝥蝥螿蝏蝨禈褅褱褄襠禥禬 |
| F0 | 襝褧嚲覤覤覸褝騥謥譹謥讔謥譔覸譅 |

F340 - F3FF

| | |
|---|---|
| 40 | 譹譁譒詔譺躮豰豲豲豼貚賮贉越趨趨賮 |
| 50 | 隣蹥蹟蹯蹻鞈鞈輇輹轈幡蹠鄎鄬醻醙 |
| 60 | 鐲鈜錯鎺鋿鏻鏻鐘鍕鏆鎉鋑鋹縯錬鎍 |
| 70 | 鐚鏄鋑鎁鋉鏨蹽闅闉雔郭窞糞蔚彩 |
| 80 | |
| 90 | |
| A0 | 韍韏摰韕韔韘頀頮顈顄顮顮颿颿颿颿颲雦 |
| B0 | 鼁鏅醹醞駲腰騇騹醙躝駐駰駵駶駐駧騎醘 |
| C0 | 騘駘駖駖駖鷏鮝鮱鮵鮯鯆魱鮶鮶鯡鯢鯘 |
| D0 | 蒶嵮紷鮵鮺其鮲鮶魳鯡鷏鷝鷏蒶魳駸蕎 |
| E0 | 鷘鷙鷏鷏鷏鷤鷏鳥鷏鸕鷳顤雦鷏鷏窞躙 |
| F0 | 鷏鷏稌窚廏鮢鮷酨鯡鮱鮓齌齿齗断龄廏輝 |

F440 - F4FF

| | |
|---|---|
| 40 | 嗅譬珋娥嶒峩墟庰襆禒懷攃攃摌攍旗 |
| 50 | 暗曀曘橃裒榺墟橺稔櫂樻漢濵濸濚攖 |
| 60 | 淍灂濄潗瀐湇罳攱瀟潤熰羕墬攮瀾嚳 |
| 70 | 皫嚕皲皨皨皨皨曒矮磌磓磓磐皫礳磺 |
| 80 | |
| 90 | |
| A0 | 禢穑穥穚辑簞篏窶篫築檻緥緭緝纏纀 |
| B0 | 糈韌暽膲膲豐膔臍龍釐疌攱袚苖薄桎斱 |
| C0 | 褏蕍蕍蕍蕍蟷蠑螥蝪墵撂襦襒賺髻謯謹 |
| D0 | 諞讔譣醟讔詫赾賺趴躞輲輲甾熾輴輵鑿 |
| E0 | 遠鄮鄃醷醹醸醼鑯鐵鐻鐏鐫鐏鏻鐯鐈 |
| F0 | 鑪鐙鐑鐠鐟鐹鐯鐮鐧鐮鈑鐮鐮釓鎴鉾 |

F540 - F5FF

| | |
|---|---|
| 40 | 錬緣鑴鋉鈻鑒麚闉闘澿鋑鄍轃褜諳馨顥顋 |
| 50 | 頖頦颴颺颺餭餝餿鑯鐏鍕駸駸駶駝駿駼 |
| 60 | 魲駼顥鷏犕腟博鍕鷲鷊鮭鮾鮸鯜鮭鮇鮵 |
| 70 | 鷏綵魱鮺鮭鮑鮻鲈鮰鯡鷏鷏鷏鸐鸐鷏鷏 |
| 80 | |
| 90 | |
| A0 | 圉鷏鵃鷏鷏鷏鷏鷏鷏鷏鷏鷏鷏鷲鷗鷏 |
| B0 | 鷏鷏鷏霞鷏鷏黧鷏腿齿齿齿齿齿齿齿齿齿齿 |
| C0 | 催觻鷏劏唯嘈嘈滽嫂歸齧廎攮摎摝機 |
| D0 | 橃舉橃澄瀺瀺瀷瀹瀝藍廞瘀瀀瀚瓳瓘 |
| E0 | 瞳磄壐磔鈸齌糘繻繼纇纈綏緷桑壂攮稜 |
| F0 | 羸羮羹蓘隱菙蓘鞀鮮蓘廞嬒瘯紫攺蕎 |

F640 - F6FF

| | |
|---|---|
| 40 | 蝏蠮壙覊蟷鑾劏峩顃襆爆檼鸞諫禱証 |
| 50 | 諺讐賺晶趲躝睉躝對釀豐酀鄽鄬鯡鑪鑲 |
| 60 | 鑯鉄鐮鐏鐟鉽鐻鑯鐮缈鐮铨闉闉闉霚薇 |
| 70 | 軼輲顅黪颭颱饀餝鱢騇貂颿騜駿驖驖驘驘 |
| 80 | |
| 90 | |
| A0 | 韖繛觻龘龏龤膠魱鮷鷏鷏鮱鮲鮷鯡鷏鷏 |
| B0 | 鮮鷏鮮鮷鮷鴇鷏鷏鷏魱鷏鷏鷏鮷鮷鷏 |
| C0 | 鷏鷏鷏鷏鷏鮷鷏鷏齧齧齧齩齩齫鷏鷏 |
| D0 | 鷏駺駲鷏鷏鷏壥嘈鷏嗳犧嬒犧嶰嘈廞庹 |
| E0 | 攤攃攔攃橃橃機毧瀝瀝瀝澯廞攱爋墅攮 |
| F0 | 瓘遷璸瓘攮礝磆禬橃檷攮蟼攃攃蓘籛籚 |

F740 - F7FF

| | |
|---|---|
| 40 | 羅鞌鑪鑪羉膣鑪鼟蔌薤綷盤薤蟷蟷壚 |
| 50 | 鼟蟺欘覨覨鮩謞謞讔讔謭譅謕膾賺曘遽 |
| 60 | 睋躙蹔鑒輴赖鄎鈹鑗鑯鑯鐯鐟鎮鐮鑑 |
| 70 | 鈺蹽鐯顃顃驖颴饀饀鐏躝鐮驦驖驦驖鐯 |
| 80 | |
| 90 | |
| A0 | 驖驖駚駶駖鑯觡覟睪鷏鷏鷏鮸鯡鮷鮭鮱 |
| B0 | 鮹鮻鷏鮴鮖鷏鷏鷏鷏鷏鷏鷏鷏鷏鷏鷲 |
| C0 | 鷲鷲鷲鷏鷏鷲鷲鷏籚鮵鷏鷏鮵鮻龞龞龡 |
| D0 | 攮剏廰廰攮嬑嬒廞攮攮慽攢攃攃蔁蕎 |
| E0 | 檳欒橃橃澗瀯瀯瀷灖夒齌鮲攮遉鐮攃臈 |
| F0 | 龝齌攮攃蓘薤壥嶘壥鐮蓘蟷蠮儱欗攃戀 |

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