DECpos 320sx

User Guide

Order Number: EK-DCPOS-UG.C01

FCC NOTICE

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 in a commercial installation.

Any changes or modifications made to this equipment may void the user's authority to operate this equipment.

This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

Re-orient or relocate the receiving antenna
Increase the separation between the equipment and the receiver
Connect the equipment into an outlet on a circuit different from that to which the receiver is connected
Consult the dealer or an experienced radio/TV technician for help

Shielded cables must be used with this device. Should any cables be replaced or added, these cables should have shielding capabilities equal to or greater than, those cables provided by Digital Equipment Corporation.

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

Achtung!
Dieses ist ein Gerät der Funkstörgrenzwertklasse A. In Wohnbereichen können bei Betrieb dieses Gerätes Rundfunkstörungen auftreten, in welchen Fällen der Benutzer für entsprechende GegenmaBnahmen verantwortlich ist.

Attention!
Ceci est un produit de Classe A. Dans un environnement domestique, ce produit risque de créer des interférences radioélectriques, il appartiendra alors à l'utilisateur de prendre les mesures spécifiques appropriées.

This document was prepared using VAX DOCUMENT, Version 2.1.

First Edition, March 1993

This document was prepared using VAX DOCUMENT, Version 2.1.

Contents

3 Configuration

4 Operation

5 Troubleshooting

6 Preventive Maintenance

A Specifications

B DECpos QWERTY/POS Keyboards

C DECpos 2.5 Station Printer DIP Settings

D DECpos Part Numbers List

E MS–DOS Software License Agreement

Index

Figures

About This Guide

Overview

This guide describes how to install, configure, and maintain the DECpos 320sx system. The DECpos is a point-of-sale (POS) system designed for recording and tracking sales transactions in a retail environment.

The DECpos system may function as a self-contained system in a small specialty or convenience store, or as a client or client/server in a medium-sized to larger setting such as a grocery, drug, discount, or department store.

In this document, the DECpos 320sx system may be referred to as the *DECpos* or the *system*.

Audience

This guide is intended for store clerks, cashiers, and managers. Installation and configuration procedures should only be performed by someone qualified in installing and configuring personal computer systems.

While this guide explains basic operations, use of the system is greatly determined by the retail applications running on the system. You should have access to your retail application documentation for daily operations.

This guide does *not* describe how to use any specific point-of-sale applications but does describe some functions common to most of them.

Organization

This guide contains six chapters and five appendices.

Chapter	Description
1	Provides an overview of the DECpos system and describes the product features.
2	Describes how to install the DECpos system.
3	Shows how to upgrade memory, and install disk drives and options cards.
4	Describes the functions of the terminal, printer, and cash drawer, as well as operator indicators and controls.
5	Provides basic troubleshooting information.
6	Describes how to maintain and ship the system.
A	Lists the system specifications.
B	Shows the QWERTY country-specific keyboards.
C	Provides the DECpos 2.5 station printer switch settings.
D	Provides the DECpos system part numbers list.
E	Provides the End User Software License Agreement for the MS–DOS operating system.

Conventions

This guide uses the following conventions:

Convention	Meaning
Warning	Provides information to prevent personal injury.
Caution	Provides information to prevent damage to equipment.
Note	Provides general information.
P/N	Part number
❶	A number in a black circle in text refers to the corresponding number in an accompanying figure.
Enter	Indicates the Enter key on your QWERTY keyboard.
Ctrl/A	Indicates two keys that you must press simultaneously.
Ctrl Alt S	Indicates three keys that you must press in sequence.
`Text`	Text that the system displays is shown in monospaced type.
`Exit`	Text that you enter is shown in bold monospaced type.

Abbreviations

This guide uses the following abbreviations:

Abbreviation	Meaning
BIOS	Basic input/output system
DRAM	Dynamic random access memory
FDD	Floppy disk drive
HDD	Hard disk drive
ISP	In-store processor
LAN	Local area network
PIN	Personal identification number
PLU	Price look-up
POS	Point-of-sale
RAM	Random access memory
SIMM	Single in-line memory module
Kb	A Kb suffix to a numerical value indicates size in kilobits. A kilobit equals 1024 bits.
KB	A KB suffix to a numerical value indicates size in kilobytes. A kilobyte equals 1024 bytes.
Mb	An Mb suffix to a numerical value indicates size in megabits. A megabit equals 1,048,576 bits.
MB	An MB suffix to a numerical value indicates size in megabytes. A megabyte equals 1,048,576 bytes.
Hz	Hertz, which is the number of cycles per second.
MHz	Megahertz, which is 1,000,000 Hertz.
ns	nano second, which is 1/1000th of one microsecond.
µs	microsecond, which is 1/1,000,000th of one second.

1

System Overview

This chapter describes the DECpos 320sx system and summarizes its features and external components.

About the System

The DECpos 320sx point-of-sale system is designed to register cash and credit card transactions in small, medium, or large retail environments. This multi-component system can operate in standalone or within a network environment. The system is driven by a standard 386sx processor, allowing the DECpos to function as both client and server.

The DECpos offers a choice of operating systems that run a variety of leading point-of-sale application packages. The following operating systems can run on the system:

- MS–DOS
- OS/2
- FLEX/OS
- SCO-UNIX

System Setup

The DECpos system is flexible in the way its components can be selected, arranged, and interconnected. The selection of keyboards, displays, and printers permit the DECpos system to be configured to a wide variety of retail environments ranging from basic check-out counters to highly interactive selling and customer service stations. The components may be arranged in an integrated fashion atop the cash drawer or dispersed about the work surface.

Input devices such as bar code scanners, scales, and personal identification number (PIN) pads may be attached to the six DECpos serial ports to hasten the check-out process and improve the accuracy of the information registered.

Network Configuration

The DECpos terminals may be linked to each other and to an in-store processor (ISP) by a local area network (LAN) or they may be linked to an ISP by a serial data line. The linking of terminals enables users to share price look-up (PLU), inventory, customer files, and immediate access to the latest information.

By using a modem, a DECpos terminal or network of terminals can access payment authorization databases and exchange other data with computer systems located at remote sites.

System Components

Introduction

The following are the main components of the DECpos 320sx system. Some components are optional, depending on your operating needs.

- System unit
- QWERTY/POS keyboard (or substitute POS keyboard)
- DECpos 2.5 station printer
- Cash drawer
- System monitor
- Customer display

System Unit

The DECpos 320sx system unit* (Figure 1–1) is a fully compatible 386sx processor with two 16-bit ISA option slots for half size cards. The DECpos 320sx is capable of supporting up to 16 MB of onboard dynamic random access memory (DRAM) and includes:

- Floppy disk drive
- 2.5-inch IDE hard disk drive
- Keyboard
- Mouse
- Monochrome or color VGA monitor
- Parallel printer

Features of DECpos 320sx

Features of the DECpos 320sx include:

- A lock to control access to the floppy drive
- A mount for the customer display (optional)
- A rear bezel, which conceals the cable connections for improved appearance

Special Features of POS Terminal

The DECpos 320sx is designed especially for use as a POS terminal. Its special features include:

- Four additional serial ports to interface to peripheral devices
- Two cash drawer ports
- A power supply to power the peripheral devices that do not have self-contained power supplies
- A battery to maintain the memory for up to 72 hours without ac power
- Capability to shut down in an orderly manner following loss of power and to resume operation without losing the transaction in process

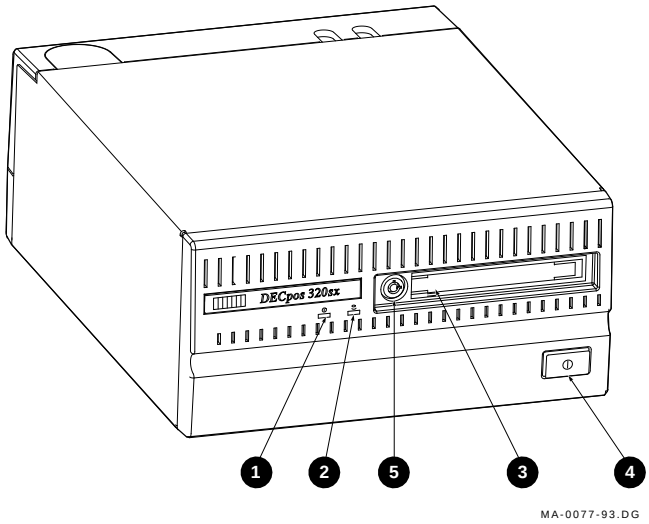
* The system unit is sometimes referred to as the electronics module in other DECpos literature.

System Unit Indicators and Controls

The following table describes the function of the indicators and controls. Figure 1–1 shows the system unit indicators and controls.

Indicator or Control	Function
System Unit Indicators	
❶ DC	Indicates that the power switch is on and both ac power and +5 VDC are present.
❷ HDD activity	Indicates that the hard disk drive is active.
❸ FDD activity	Indicates that the floppy disk drive is active.
System Unit Controls	
❹ Power switch	Controls ac to the power supply.
❺ FDD lock	Controls access to the floppy disk drive.

Figure 1–1 System Unit Front View



QWERTY/POS Keyboard

The DECpos system can be configured with either the QWERTY/POS keyboard or the POS keyboard. The QWERTY/POS keyboard is an alphanumeric keyboard that is customized with additional keys for point-of-sale operation.

The QWERTY/POS keyboard has 121 (122 in Europe) keys, many of which are programmable. When extensive alphanumeric input is required, this keyboard is preferred (Figure 1–2).

All keys other than the alphanumeric keys on the QWERTY/POS keyboard can be labeled for functions appropriate to their applications.

Window key tops for the keys with removable tops are packaged with the keyboard. Place the legends furnished by your software applications vendor on the appropriate keys and snap the window key tops in place.

The keyboard has a built-in magnetic stripe reader (MSR) that reads credit cards and DECpos employee identification cards.

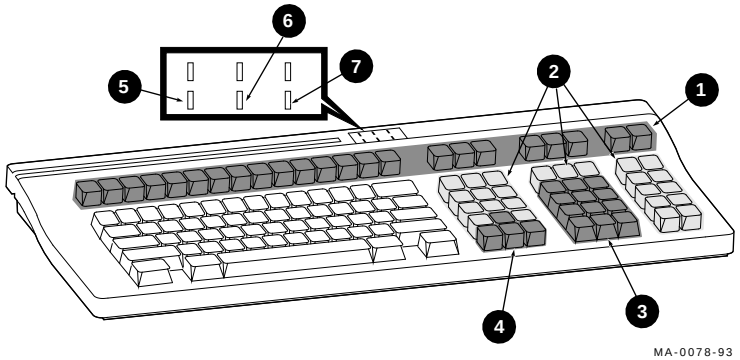
The numeric pad is controlled by the Num Lock key. When the Num Lock indicator is lit, the keys are used to enter numerals and the decimal point; when the Num Lock indicator is not lit, the keys are used for controlling the monitor screen cursor.

QWERTY/POS Keyboard Layout

The following table describes the function of the QWERTY/POS keys and indicators. Figure 1–2 shows the QWERTY/POS keyboard layout.

Key or Indicator	Function
❶ Function keys	Program specific. Their functions are determined by the software you are running.
❷ Special function keys	Perform the general functions indicated on the keys. Specific functions might vary slightly in a given application program.
❸ Numeric keypad	Used for entering numbers.
❹ Arrow keys	Move cursor in different directions.
❺ Num Lock indicator	Indicates that the Numeric Pad is in numeric mode.
❻ Caps Lock indicator	Indicates that the keyboard is in uppercase mode (generates uppercase characters).
❼ Scroll Lock indicator	Indicates that the system is in Scroll Lock mode.

Figure 1–2 QWERTY/POS Keyboard (U.S. Model)



POS Keyboard

The DECpos system can also be configured with the POS keyboard.

The POS keyboard has 60 keys, most of which are programmable. This keyboard is designed for a high-speed check-out counter environment (Figure 1–3).

The POS keyboard scan codes are a subset of a standard PC keyboard scan code set which allows the keyboard to input the commands necessary to execute programs. See Appendix B to view the POS keyboard keys.

All keys other than the numeric keys on the POS keyboard can be labeled for functions appropriate to their applications.

Window key tops for the keys with removable tops are packaged with the keyboard. Place the legends furnished by your software applications vendor on the appropriate keys and snap the window key tops in place.

The POS keyboard also has a built-in MSR that reads credit cards and DECpos employee identification cards.

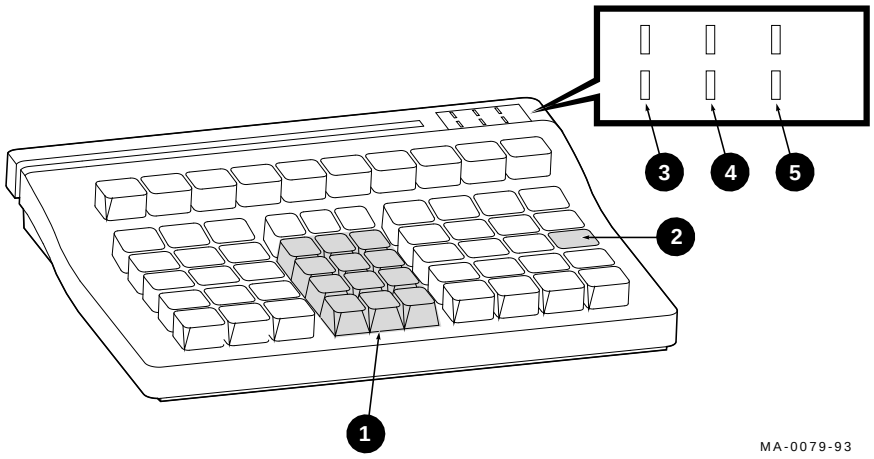
The numeric pad is controlled by the Num Lock key. When the Num Lock indicator is lit, the keys are used to enter numerals and the decimal point; when the Num Lock indicator is not lit, the keys are used for controlling the monitor screen cursor.

POS Keyboard Layout

The following table describes the function of the POS keys and indicators. Figure 1–3 shows the POS keyboard layout.

Key or Indicator	Function
❶ Numeric keypad	Used for entering numbers.
❷ Space key	Advances cursor one space.
❸ Num Lock indicator	Indicates that the Numeric Pad is in numeric mode.
❹ Caps Lock indicator	Indicates that the keyboard is in uppercase mode (generates uppercase characters).
❺ Scroll Lock indicator	Indicates that the system is in Scroll Lock mode.

Figure 1–3 POS Keyboard



2.5 Station POS Printer

The 2.5 station POS printer has a serial interface and is powered by the DECpos power supply. The printer has three printing stations (Figure 1–4).

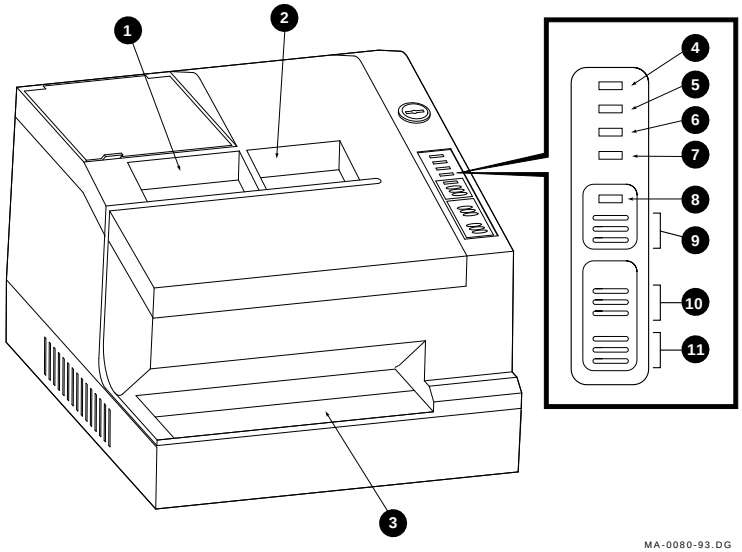
Station	Prints
❶ Customer receipt	Customer receipts (40 column)
❷ Journal report	Copy or summary of receipt, exception reports, and copy of end-of-day reports. Includes take-up spool with locking cover.
❸ Paper form (slip)	Forms such as checks, credit vouchers, or letter size slips (88 column).

Printer Indicators and Controls

The following table describes the function of the printer indicators and controls. Figure 1–4 shows the printer indicators and controls.

Indicator or Control	Function
Indicators	
❹ Power (green)	Indicates that the printer is powered.
❺ Slip (green)	Flashes to indicate that the form should be inserted.
❻ Receipt Out (red)	Indicates that the receipt roll has run low or is not seated properly.
❼ Journal Out (red)	Indicates that the journal roll has run low or is not seated properly.
❽ On Line (green)	Indicates that the printer is on line.
Controls	
❾ On Line	Alternately sets the printer On and Off line.
❿ Receipt Feed	Feeds the receipt paper.
⓫ Journal Feed	Feeds the journal paper.

Figure 1–4 2.5 Station POS Printer



Optional Invoice/Report Printer

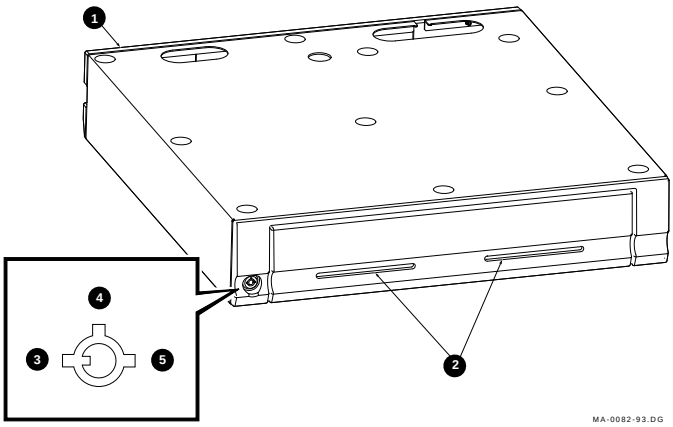
The DECpos system can generate full size invoices and reports by connecting an 80- or 132-column line printer to the parallel port or one of the serial ports.

Cash Drawer

The DECpos cash drawer (Figure 1–5) may be placed on a counter top or hung from underneath the counter. Its features include:

- Storage space for DECpos cables in rear❶
- Media slots in the front of the drawer with storage space for media under the money tray❷
- Three-position security lock
  - Left position❸ locks drawer. In this mode, drawer can open only with a key.
  - Center position❹ is for normal mode of operation.
  - Right position❺ opens drawer without power and prevents the drawer from locking.
- Removable money tray
- Knock out hole beneath cash drawer that allows access to the drawer without power or security key

Figure 1–5 Cash Drawer



System Monitor

The standard DECpos monitor is a 9-inch monochrome VGA model with a tilt/swivel base (Figure 1–6). The monitor can be placed on top of the system unit or on the counter. It has its own power switch that should be left on as the monitor power is

controlled by the power switch on the system unit. The monitor has operator controls for brightness and contrast.

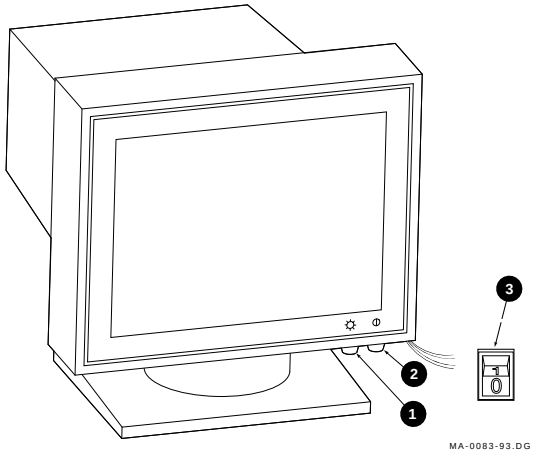
Optional monitors include 14-inch monochrome and color VGA models.

System Monitor Controls

The following table describes the function of the system monitor controls. Figure 1–6 shows the system monitor controls.

Control	Function
❶ Brightness	Controls monitor brightness.
❷ Contrast	Controls monitor contrast.
❸ Power switch	Controls power to the monitor (leave in the on position).

Figure 1–6 System Monitor (9-Inch Monochrome)



Customer Display

The DECpos customer display unit allows customers to view transactions as they are recorded. Transaction steps appear on two lines each 20 characters long. The customer display unit can mount on the system unit or counter top and has a tilt/swivel screen.

The customer display may also be used to display the weight measured by the attached scale.

The unit has a serial interface and is powered by the system unit.

2
Installation

This chapter describes how to install the following DECpos 320sx system components. Figure 2–1 shows the DECpos 320sx system components.

❶ System unit

❷ QWERTY/POS keyboard (or substitute POS keyboard)

❸ DECpos 2.5 station printer

❹ Cash drawer

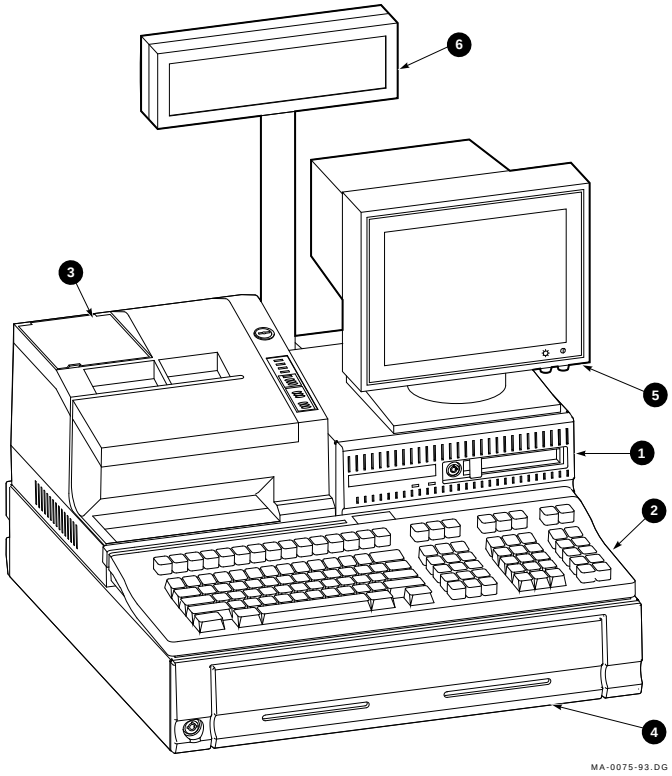
❺ System monitor

❻ Customer display

Note

Read the installation instructions completely before starting the installation. Inspect each component for shipment damage. Save all packing materials for use in returning any defective items.

Figure 2–1 DECpos 320sx System Components



Before Installing Your System

Before installing your system, ensure that you have allowed enough room for system components and user operability and have access to the proper electrical outlets.

Because the system can be configured in many ways, not all of the installation procedures described in this chapter may apply to your configuration.

The DECpos 320sx system may be installed with the cash drawer on top of the counter, recessed in a well, or mounted below the counter. The position of the operator (standing or seated) and the location and number of cash drawers should be considered to determine the optimal height for the counter top or the well.

There should be about three feet of clear floor space in front of the terminal for the operator to stand. It is desirable that there be clear space to the rear of the terminal to allow access to the connectors on the rear of the DECpos. If no clear space is available at the rear, then the DECpos may be turned to gain access to the connectors.

For a neat appearance, all DECpos cables should pass through a 2.5-inch diameter access hole in the counter top.

Power Outlets

The outlets used for the DECpos and associated peripherals should be of the insulated/isolated ground type (usually orange in color) and should be used only for POS equipment. The outlet should be located underneath the counter within five cable feet of the rear of the DECpos. The outlet should be placed so the plug can not be accidentally dislodged by items stored under the counter and it should be somewhat inaccessible to discourage use of these outlets for other appliances.

All the peripherals associated with the POS should be plugged into the same outlet group. The following precautions should be taken:

Caution

- Do not use plug adapters to convert three prong plugs to two prong outlets.

- The circuit breaker serving this outlet should be marked or covered so that it can not accidentally be turned off. The DECpos should have power at all times to keep the battery fully charged.
- Checkout counter belt motors should not be plugged into this outlet group.
- Cleaning personnel should be instructed not to unplug the DECpos nor should cleaning equipment, such as vacuum cleaners and floor buffers, be plugged into these outlets.

LAN Wiring

The junction box for the local area network wiring should also be located under the counter within five cable feet of the system.

Telephone Wiring

If the DECpos is equipped with a modem for data transmission, then a telephone modular jack should be located under the counter within five cable feet of the system. If the line is to be used for both voice and data, then the telephone set may be plugged into the second jack on the internal modem.

Caution

The telephone line should not be equipped with the *call waiting* feature because a call received during data transmission terminates the communications session if the call is initiated by the remote host. For calls initiated by the DECpos, the application software could disable the call waiting feature if the local exchange supports this feature.

Battery Operation

The 6-volt battery in the DECpos protects the system from losing programs and data because of intentional or accidental loss of power for periods of up to 72 hours, but the battery does *not* allow the terminal to operate without power.

Installing the Cash Drawer

Introduction

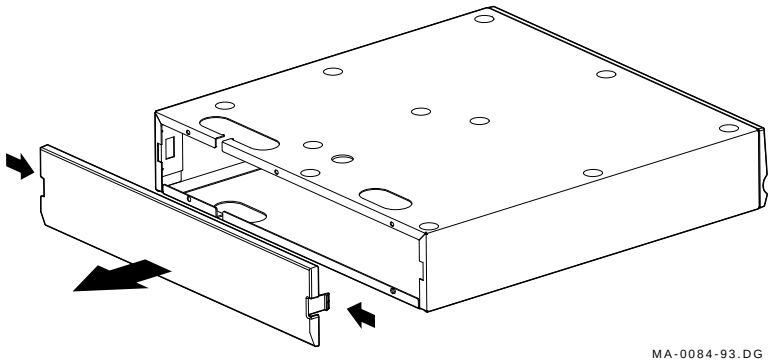
You can install the cash drawer either under the counter or on top of the counter. If the procedures are specific to only one method of installing the cash drawer, then it will be indicated at the beginning of the sections. Otherwise, the procedures are common to both installations.

Removing the Cash Drawer Rear Cover

To remove the rear cover of the cash drawer:

1. Unpack the cash drawer and set it on the counter.
2. Remove the rear cover by depressing the tabs at each side as shown in Figure 2–2. Set the cover aside.
3. Remove the sliding drawer from the cash drawer assembly.
4. Remove the drawer keys that are taped inside the rear of the drawer. Be careful not to lose them because each drawer is individually keyed.
5. Pass the gray cash drawer cable through the access hole on the bottom or top of the cash drawer and replace the cover.

Figure 2–2 Removing the Cash Drawer Rear Cover



Required Tools

You need the following tools to install the cash drawer under the counter.

- Drill
- 5-millimeter (11/64-inch) drill bit
- Long magnetized Phillips screwdriver

Note

Before drilling any holes, refer to the installation template that is provided with the cash drawer.

Mounting the Cash Drawer Under the Counter

Note

Perform the instructions in this section only if you are installing the cash drawer under the counter.

To install the cash drawer under the counter:

1. First ensure that the counter area provides clearance for ease of installation and operation under and around the counter.

   When the cash drawer is closed, it measures 20 inches wide and 21 inches deep.

2. Locate the installation template that is supplied with the drawer and tape it in the appropriate location under the counter.

3. Using the installation template markings as reference points, drill starter holes under the counter.

   Caution

   Be sure to wear safety glasses before drilling.

4. Using the large head screws provided and a long magnetized screwdriver, screw the cash drawer to the counter by passing the screws up through the access holes in the bottom of the cash drawer.

Installing the Cash Drawer on the Counter

Note

Perform the instructions in this section only if you are installing the cash drawer on top of the counter.

To install the cash drawer on top of the counter:

1. First ensure that the counter area provides clearance for ease of installation and operation on top of and around the counter.

   When the cash drawer is closed, it measures 20 inches wide and 21 inches deep.

2. Leave the rear cover off and position the drawer in its operating position on top of the counter.

Drilling a Cable Access Hole

A 2.5-inch cable access hole should be drilled in the counter top to run system wires to the power outlet. In the case of system with a cash drawer installed under the counter, this hole is also used to connect system components.

1. Check to be sure that the power outlet is within cable length of your system. You can use the system unit power cable to determine if the power outlet is within reach.

   The access hole should be made close to the cable access hole of the drawer. If the drawer is installed under the counter, avoid positioning a hole that could interfere with cash drawer operation.

2. Drill the 2.5-inch hole.

Installing Other System Components

If the cash drawer is installed on top of the counter, then you can position other system components on top of the cash drawer. Otherwise, position the components directly on the counter top.

Installing the Keyboard, Printer, and System Unit

To install these components:

1. Unpack the keyboard and align it on the top front of the cash drawer so that the keys face the front of the drawer. (The POS keyboard is usually placed in front of the system unit.) Pass the keyboard cable down through the round hole in the rear of the cash drawer.

   If you ordered a keyboard other than American English, then find the appropriate bag of key tops packaged with the system unit. Using the key top removal tool provided, remove the designated key tops and replace them with new key tops.

2. Unpack the printer and place it in its operating position. The feet of the printer should rest in the dimples on the cash drawer top.

   After completing the procedures in this module, refer to Chapter 4 for directions on installing the paper and ribbon in the printer.

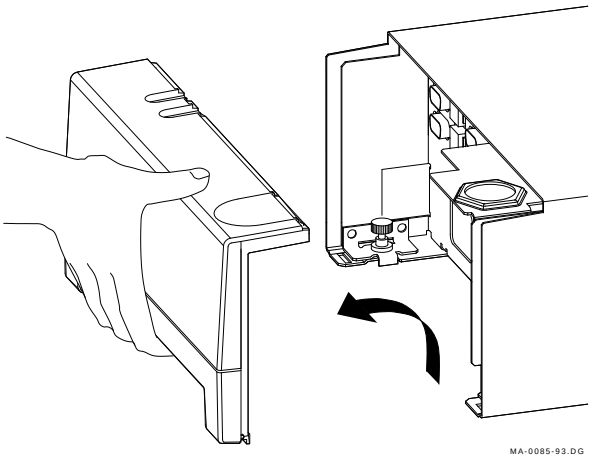
3. Unpack the system unit and place it in its operating position. The feet of the system unit should rest in the dimples on the cash drawer.

4. Remove the rear cover of the system unit by placing your fingers on the bottom of the cover and thumb on top. Pull at the top and tilt the cover off (Figure 2–3). Set it aside.

   If there are any system unit options that have not been factory installed, it will be necessary to remove the system cover and install the unit options according to the instructions found later in this guide.

5. Unpack the monitor and place it on the system unit with the base located just behind the front edge of the system unit and slightly to the right.

Figure 2–3 Removing the System Unit Rear Cover



Installing the Customer Display

You can install the customer display either on top of the system unit or on top of the counter. If the procedures are specific to only one method of installing the customer display, then it will be indicated at the beginning of the sections. Otherwise, the procedures are common to both installations.

Inserting the Hex Nipple (System Unit Installation Only)

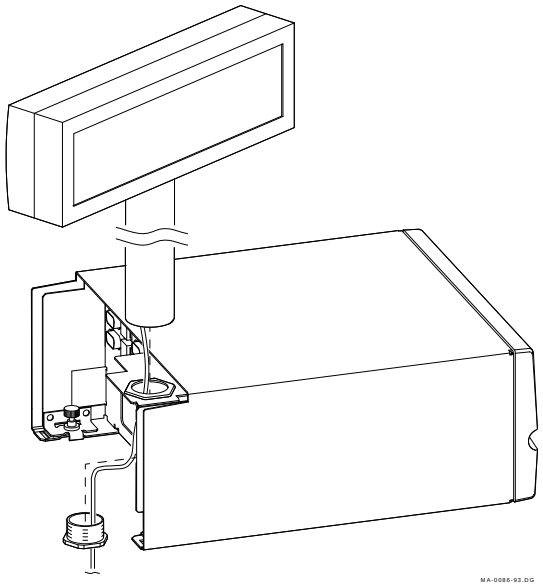
Note

Perform the instructions in this section only if you are installing the customer display on top of the system unit.

1. Locate the short threaded nipple with the hexagon-shaped head that is supplied with the customer display.
2. Insert the hex nipple up through the large hole on the back of the system unit so the threads protrude above the support bracket (Figure 2–4).

3. Screw the pole onto the nipple until it is hand tight.

Figure 2–4 Mounting the Customer Display on System



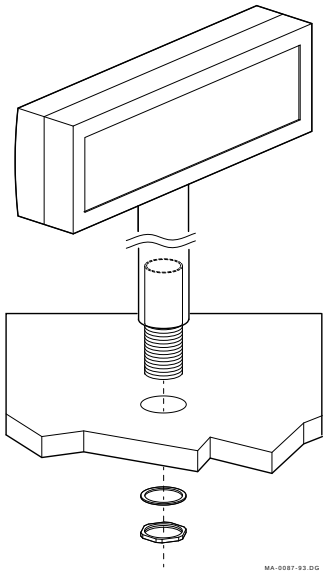
Drilling the Counter Top (Counter Top Installation Only)

Note

Perform the instructions in this section only if you are installing the customer display on top of the counter.

1. Drill a 29-mm (1-1/8 inch) diameter hole in the counter top at the desired location.
2. Find the 3-inch threaded nipple and screw it into the bottom of the display pole and pass the threaded portion down through the hole you have just drilled (Figure 2–5).
3. Secure the pole under the counter using the washer and nut.

Figure 2–5 Mounting the Customer Display on Counter Top



Adjusting the Customer Display Head

1. Pass the customer display cable down through the pole and pull the excess cable through until the display head is close to the pole.
2. Insert the neck of the display head into the pole and rotate the display head to its preferred position on the pole.

Note

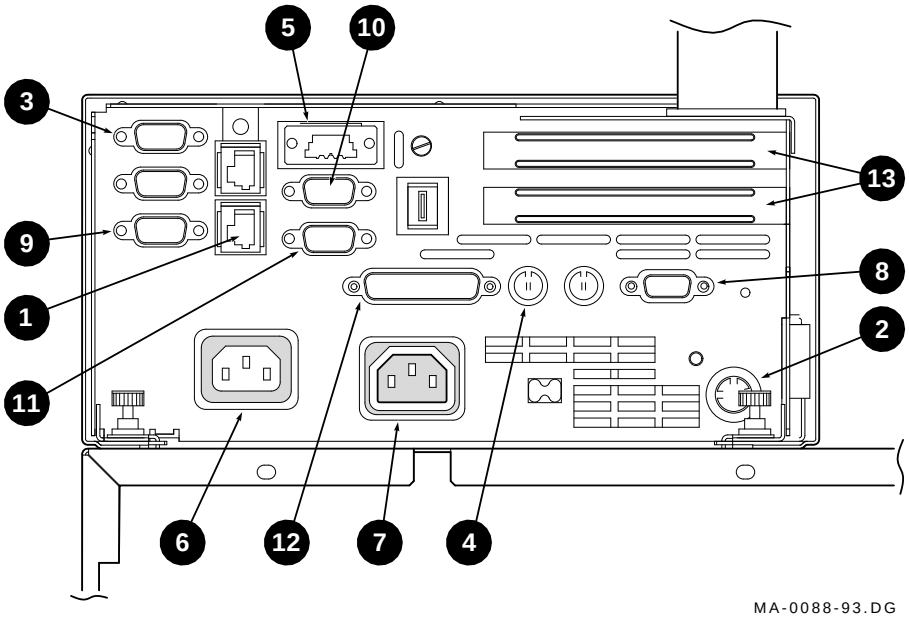
If the customer display is being used to display the weight of items on a scale, place the appropriate decal (shipped with the display) over the DIGITAL logo on the front of the customer display.

Connecting System Components

Route all cables through the holes provided in the cash drawer, system unit, printer and counter top.

Figure 2–6 shows the system cable connections. Figure 2–7 shows the same connections using icons.

Figure 2–6 System Cable Connections



To make the system cable connections:

1. Connect the gray cash drawer cable from the rear of the cash drawer into the jack labeled $1 on the rear of the system unit.

   Pull the printer towards you and tip it up so that it extends beyond the rear of the cash drawer thus making it easier to access its connector panel.

❷ Take the black printer power cable from the accessories bag and plug one end into the jack marked *24 V* on the printer. Pass the other end of the cable through the cable access hole under the printer and connect it to the jack marked *24 V* on the system unit.

❸ Take the gray printer interface cable from the accessories bag and plug the large end into the interface jack marked *RS-232C* on the printer and hand tighten the screws.

Pass the small end of the cable through the access hole under the printer and plug it into the ⇌1 jack on the system unit and gently hand tighten the screws.

Move the printer forward so its feet rest in the dimples on the cash drawer.

❹ Connect the keyboard cable to the keyboard jack on the system unit. Be sure to pass the cable through the round hole in the rear of the cash drawer.

❺ Connect the customer display cable into the ⇌D jack on the system unit.

❻ Pass the female end of the system unit power cord up through the rear of the cash drawer and plug it into the male IEC connector on the rear of the system unit.

❼ Connect the monitor power cable into the female IEC connector on the system unit.

❽ Connect the monitor signal cable into the VGA jack on the system unit.

❾ Pass any peripheral device interface cables up through the cash drawer and connect them to the appropriate jack on the rear of the system unit as follows:

Cable	Jack*
PIN pad	⇌A ❾, ⇌B ❿, or ⇌C ⓫
Scale	⇌A ❾, ⇌B ❿, or ⇌C ⓫
Scanner	⇌A ❾, ⇌B ❿, or ⇌C ⓫

*These jacks are modified RS-232C jacks that have +5V on pin 9; not all RS-232C devices can connect to these ports.

Cable	Jack*
Scanner/scale	⇌A ❾, ⇌B ❿, or ⇌C ⓫
Report/invoice printer	Parallel printer ⓬
Telephone instrument	Modular jack on modem card for one of two ISA slots ⓭
Telephone line	Modular jack on modem card ⓭
LAN	Located on LAN card ⓭

*These jacks are modified RS-232C jacks that have +5V on pin 9; not all RS-232C devices can connect to these ports.

Placing Excess Cable

Recheck all connections and place all excess cable in the rear of the cash drawer and replace the rear cover of the cash drawer.

Checking the Voltage

Make sure the voltage switch on the back of the system unit is set correctly. To change it, simply insert a pen to select either 115 or 230 volts.

Powering Off the System Unit

Check that the power switch on the system unit is set to the Off position.

Powering On the Monitor

Check that the monitor is set to the On position. You may need to move the keyboard slightly forward to access the switch. The monitor is in the Off position when the "O" is pushed in. It is on when the " | " is pushed in.

Connecting the System AC Power Supply

1. Plug the system unit power cable into the power connector on the back of the system unit and pass the other end of the cable through the access hole in the cash drawer.
2. Plug the power cord from the system unit into an electrical outlet.
3. Turn the system on by pressing the switch on the front lower right corner of the system unit. The green power-on indicator should light.

Testing the Battery Power Supply

Turn the system unit off.

The green power on indicator light should remain on for at least ten seconds. If it does not remain for at least ten seconds, then the battery has not been connected or it is completely discharged. Chapter 3 shows how to connect the battery.

Adjusting the Printer

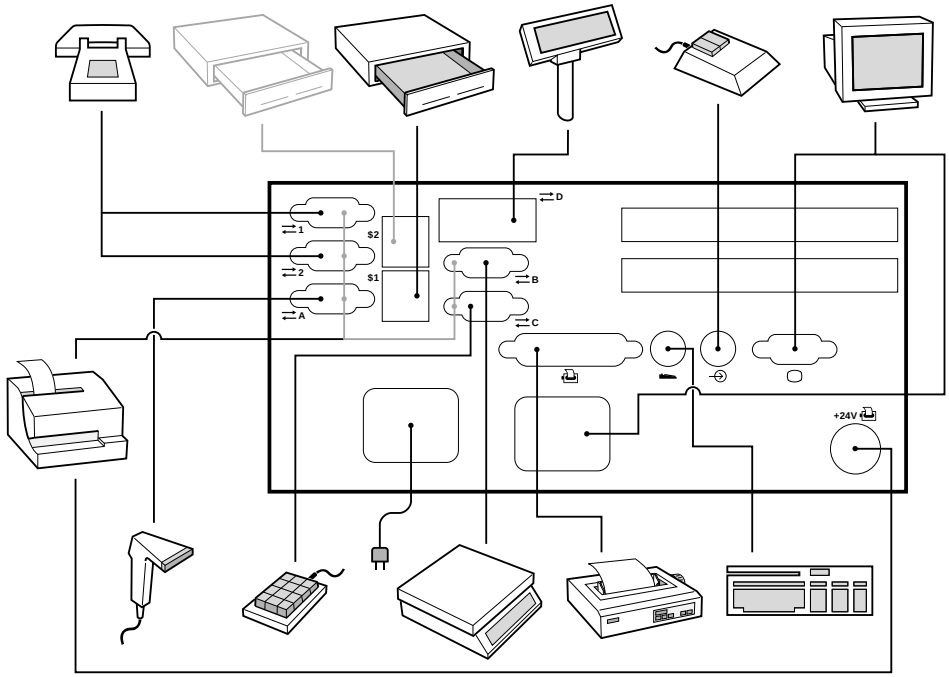
If the On-Line indicator on the printer is lit, press the On Line switch on the printer so the On-Line indicator is not lit.

For instructions on installing the printer ribbon and paper, see Chapter 4.

Connecting System Unit Peripherals

Figure 2–7 shows the proper ports for system connections.

Figure 2–7 System Unit Peripheral Connections



Replacing the Rear Cover

Note

If the display pole is mounted on the system unit, then remove the small plastic insert from the rear cover.

Replace the rear cover of the system unit by inserting the tabs into the slots on the cover and snapping it in place.

3
Configuration

This chapter describes how to upgrade memory, and install disk drives and option cards.

Upgrading Memory

Introduction

Depending on your business needs you may want to upgrade the memory of your system. The DECpos system logic board contains two sockets for two single in-line memory modules (SIMMs) and will support up to 16 MB of memory.

Memory

Recommended SIMMs are available from Digital in the following sizes:

Size	Configuration
1 MB	256 K x 36 bits
4 MB	1024 K x 36 bits
16 MB	4096 K x 36 bits (2 sides)

Note

If you purchase SIMMs from other sources, ensure that they have access times of 70 or 80 ns and that they are 36-bit units. SIMMs selected by Digital for use in the DECpos have standby power requirements that are typically low in order to reduce the current drain on the battery.

The recommended memory configurations are as follows:

Total Memory Capacity in MB	No. of SIMM	SIMM Size in MB	Jumper Pin Setting
1	1	1	1-2
2	2	1	1-2
2*	1	2	2-3
4	1	4	1-2
8	2	4	1-2
8*	1	8	2-3
16	1	16	1-2

*Alternate configuration.

Note

If your DECpos system has 1 or 4 MB of RAM, then the capacity may be doubled by placing an identical part in the second socket to increase the capacity to 2 or 8 MB.

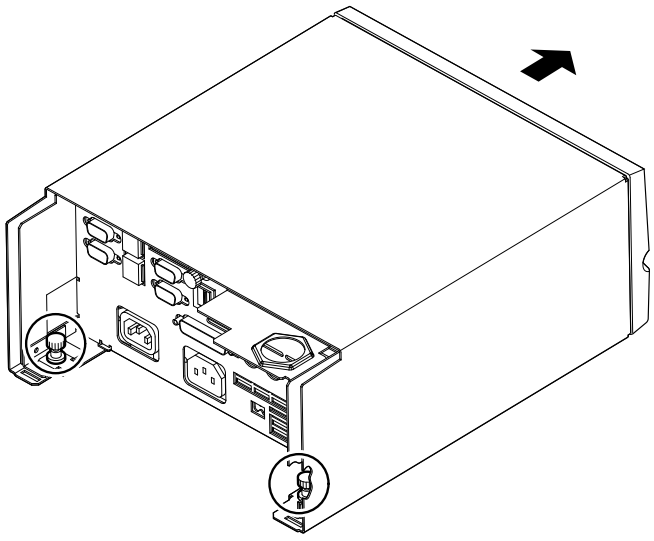
If your system has 2 or 8 MB of RAM, then both SIMMs must be replaced to increase the capacity.

Removing the System Unit Cover

To perform a memory upgrade or to access the disk drives, you need to remove the system unit cover by doing the following:

1. Remove the rear cover by placing your thumb on the top surface and fingers in the opening near the bottom and pulling the top edge towards you (Figure 2–3).
2. Unplug the power cord.
3. With a Phillips screwdriver, loosen the two captive screws located just inside the bottom rear of the system unit until they pop up (Figure 3–1).
4. Slide the cover forward to expose the inside of the system unit.

Figure 3–1 Removing the Two Cover Captive Screws



Caution

Static electricity can damage electronic parts. Before handling any electronic circuit cards or disk drives, be sure to discharge any built-up static electricity by touching a grounded metal object other than the DECpos chassis.

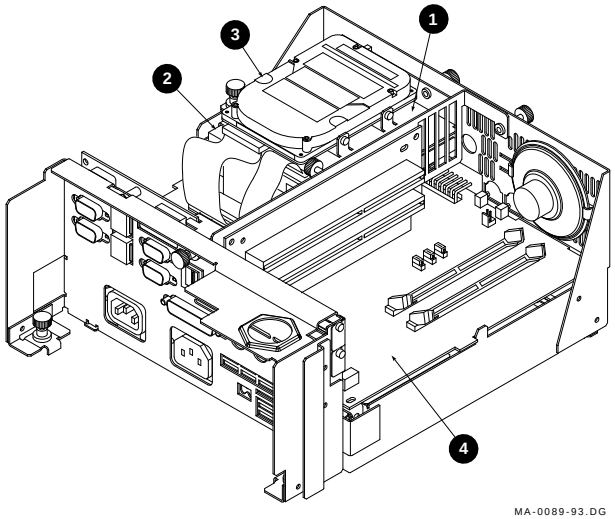
Even though the ac power cord has been removed, there are two batteries in the DECpos system that supply power to the memory components. Be careful not to drop any metal objects such as screws and washers onto the DECpos logic card.

System Unit Components

The DECpos 320sx system unit consists of the following components. Figure 3–2 shows the system unit components.

1. Disk drive bracket
2. Floppy drive
3. Hard drive
4. Logic board

Figure 3–2 System Unit Components



Logic Board

The logic board consists of the following parts. Figure 3–3 shows the logic board.

❶ Hard drive connector

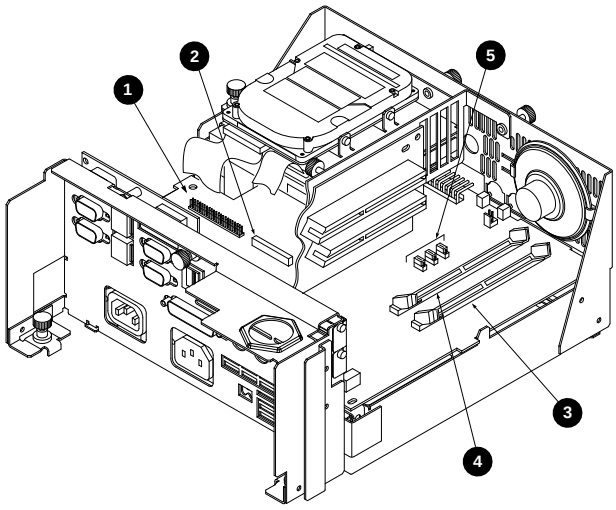
❷ Floppy drive connector

❸ SIMM memory socket 1

❹ SIMM memory socket 2

❺ SIMM memory jumper pins

Figure 3–3 Logic Board



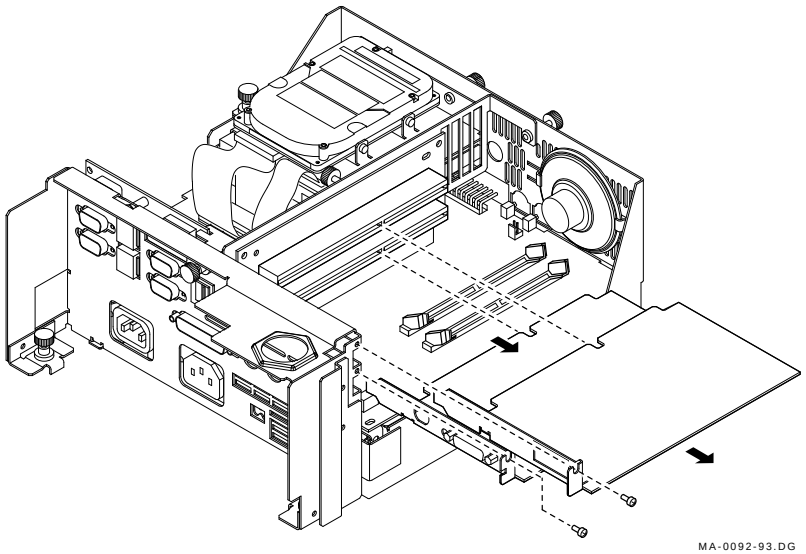
Accessing the SIMM Sockets

The two SIMM sockets are located on the left side of the DECpos logic board. If there are option cards installed, then it will be necessary to remove them to gain access to the sockets. They may be either LAN or modem cards.

To remove the option cards:

1. Disconnect any external cables that are attached to the option cards (Figure 3–4).
2. Using a Phillips screwdriver, remove the screws that secure the option cards to the side of the chassis.
3. Remove the option cards by pulling them out the side of the system unit.

Figure 3–4 Removing Option Cards



Removing Installed SIMMs

Caution

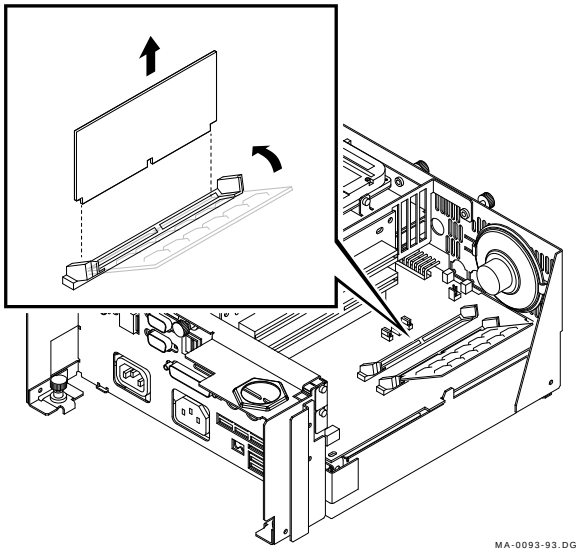
Before removing or replacing system unit FRUs, wear an electro-static discharge (ESD) strap. Failure to do so may cause damage to system unit components.

You should disconnect the battery before removing or adding SIMMs. To see how to disconnect the battery, refer to the Battery Supply section in this module.

To remove a SIMM from its socket:

1. Use both thumbs to carefully spread apart the retaining latches on the SIMM socket (Figure 3–5).
2. While holding the latches apart, tip the SIMM forward until it clears the retaining latches.
3. Pull the SIMM up and out of the socket.

Figure 3–5 Removing a SIMM



Installing SIMMs

Caution

Before removing or replacing system unit FRUs, wear an electro-static discharge (ESD) strap. Failure to do so may cause damage to system unit components.

You should disconnect the battery before removing or adding SIMMs. To see how to disconnect the battery, refer to the Battery Supply section in this module.

To install a SIMM:

1. Firmly press the edge connector on the SIMM into the socket and tilt the SIMM until it is secured by the retaining latches (Figure 3–6).

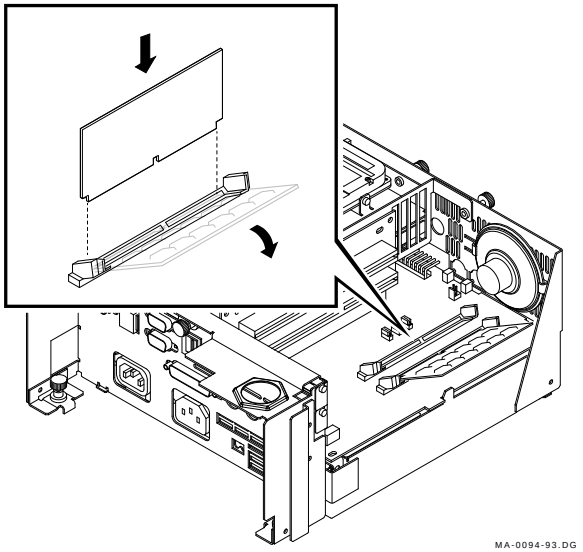
   If only one SIMM is installed, then it should be plugged into the socket closest to the edge of the card.

2. There are three sets of jumper pins located next to the inboard SIMM socket that are used to control bank selection on the SIMMs.

   Set the three sets of jumper pins to pins 1-2 for single bank SIMMs and to pins 2-3 for two bank SIMMs. Jumper 1 pins are those nearest the center of the logic board.

SIMMs	Jumper Setting
Single Bank	
1 MB	1-2
4 MB	1-2
16 MB	1-2
Two Bank	
2 MB	2-3
8 MB	2-3

Figure 3–6 Installing a Single Bank SIMM



Disk Drives

Introduction

This section describes how to remove and replace the following:

- Disk drive bracket
- Floppy disk drive
- Hard disk drive

  If you are replacing a hard disk drive, check with the system manager to see if the operating system first needs to be backed up and restored.

The DECpos may have one 3½-inch floppy disk drive (FFD) and one 2½-inch hard disk drive (HDD), which are attached to the disk drive bracket.

Note

Do not attempt to use the 3½-inch HDDs in the DECpos since the DECpos HDD connector does not supply the 12 V required by most of these drives.

Caution

Remove the disk drive bracket completely from the DECpos housing unit before attempting to remove or install the disk drives. The screws which fasten the drives to the bracket can damage the logic card or cause loss of data if they fall onto the logic card and create a short circuit.

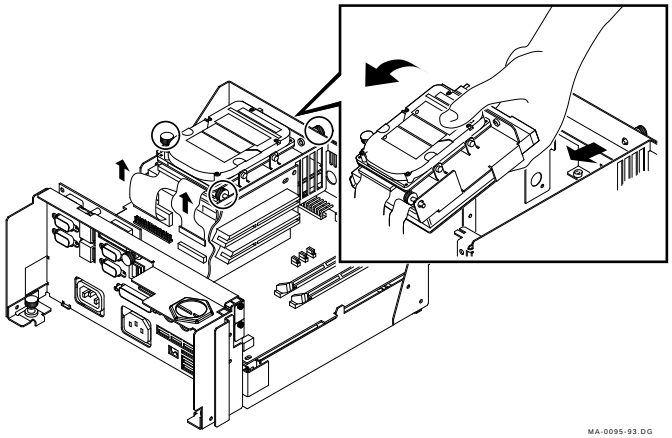
Removing the Disk Drive Bracket

To remove the disk drive bracket:

1. Loosen the three captive screws which secure the disk bracket to the system unit (Figure 3–7).
2. Slide the whole unit to the back of the system so the FDD does not protrude beyond the FDD slot.
3. Using your left hand, lift up the whole unit and tilt it toward the back of the system at an angle.

4. Using your right hand, disconnect the FDD cable at the logic board by lifting up on the front side of the connector.
5. Disconnect the HDD cable at the logic board by pulling it up.

Figure 3–7 Removing the Disk Drive Bracket

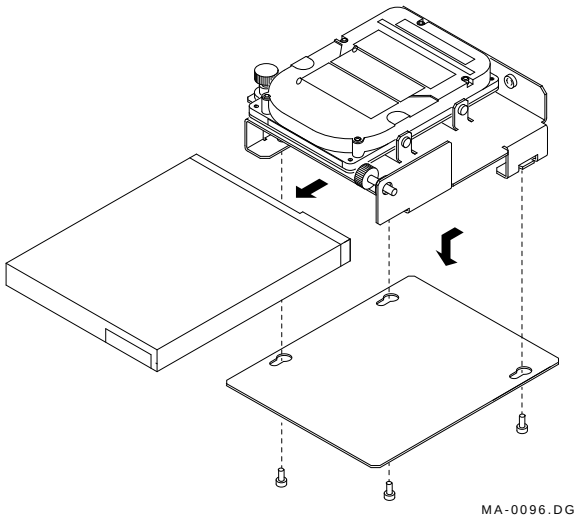


Removing the Floppy Disk Drive

To remove the floppy disk drive:

1. Remove the three screws that secure the protective shield and floppy drive to the bracket (Figure 3–8).
2. Remove the protective shield and floppy drive from the bracket.

Figure 3–8 Removing the Floppy Disk Drive

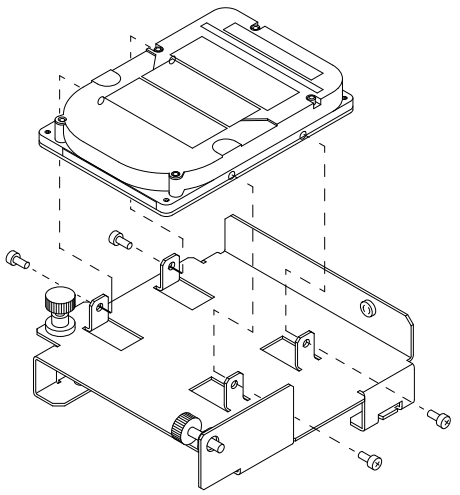


Removing the Hard Disk Drive

To remove the hard disk drive:

1. Remove the four screws that hold the hard disk drive in place (Figure 3–9).
2. Remove the drive from the bracket.

Figure 3–9 Removing the Hard Disk Drive



MA-0097-93.DG

Installing the Floppy Disk Drive on the Bracket

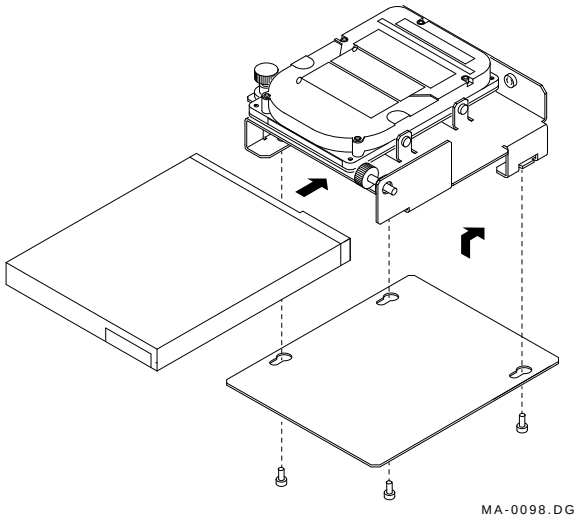
To install the floppy disk drive on the bracket:

1. Place the FDD on the work surface with the cable connector facing up.
2. Release the retaining clamp on the connector.
3. Orient the flat ribbon cable so the blue bar faces the rear of the drive and insert it into the connector on the drive.
4. Press down firmly on the retaining clamp to secure the cable.
5. Slide the FDD into the disk bracket (Figure 3–10).
6. Slide the protective shield up under the FDD and align the shield holes with the bracket holes.
7. Tighten the screws so they secure the shield to the disk bracket.

Caution

Be careful not to distort the drive when securing it to the drive because it will not operate properly. The use of screws longer than 6.3 mm (¼ inch) may interfere with proper operation of the FDD.

Figure 3–10 Installing the Floppy Disk Drive

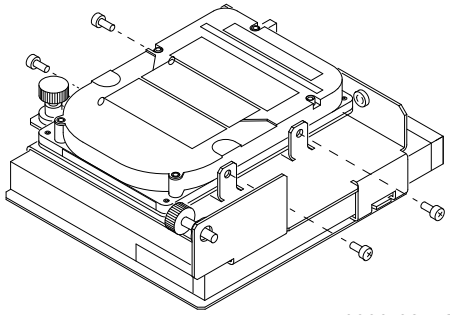


Installing the Hard Disk Drive on the Bracket

To install the hard disk drive on the bracket:

1. Select the end of the hard disk drive cable that has the polarizing pin and orient the cable so it mates with the connector on the HDD and connect it to the main group of pins (leaving four pins unconnected).
2. Place the HDD on the disk bracket so as to align the tapped holes in the HDD with the mounting tabs on the disk bracket (Figure 3–11).
3. Insert the four screws in the holes but do not completely tighten any one of them until all screws are in place.
4. Tighten all four screws.

Figure 3–11 Installing the Hard Disk Drive



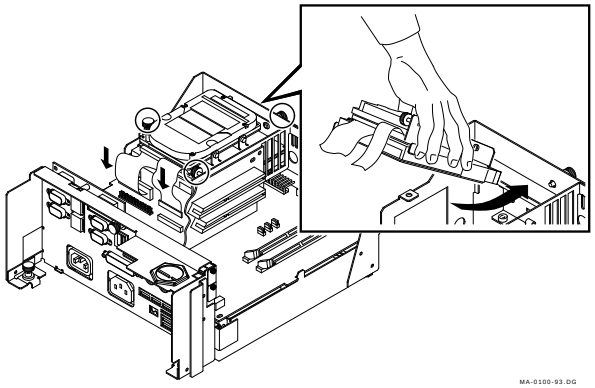
MA-0099-93.DG

Installing the Disk Drive Bracket

To install the disk drive bracket:

1. Release the holding clamp on the FDD connector on the logic board by pulling it upward.
2. Insert the FDD cable into the FDD connector on the logic board and push down on the retaining clamp to secure it in place.
3. Connect the HDD cable to the HDD connector on the logic board.
4. Insert the front of the FDD through the clearance hole in the front of the DECpos chassis and secure the disk drive bracket by tightening the three captive screws (Figure 3–12).

Figure 3–12 Installing the Disk Drive Bracket



Removing the Disk Drive Cover from the Front Bezel

If your DECpos did not originally come equipped with an FDD, then the opening in the bezel for the FDD will be blocked by a cover that must be removed in order to re-install the DECpos cover.

To remove the disk drive cover from the front bezel, then squeeze the tabs from the inside and push outward.

Option Cards

Introduction

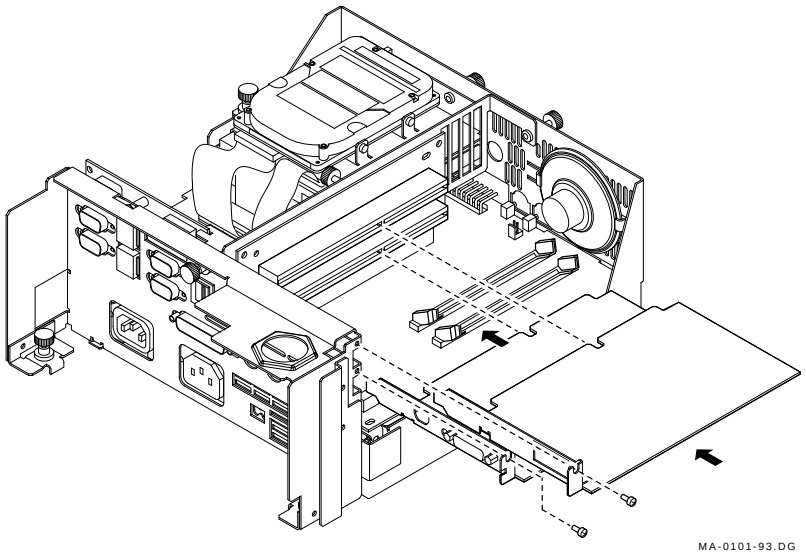
The DECpos has two slots for 16-bit half-size option cards. These cards are used for LAN or modem connections.

Installing Option Cards

To install the option cards:

1. Loosen and remove the screw holding the blank option cover plate from the left side of the DECpos chassis (Figure 3–13).
2. Remove the blank cover plate and save it in case the option should ever be removed.
3. Insert the option card into the option connector on the riser card and secure the card with a screw.
4. Attach the external cables.

Figure 3–13 Installing Option Cards



Battery Supply

Introduction

At some point you may need to connect or disconnect the system battery. To connect the battery:

Connecting the Battery Supply

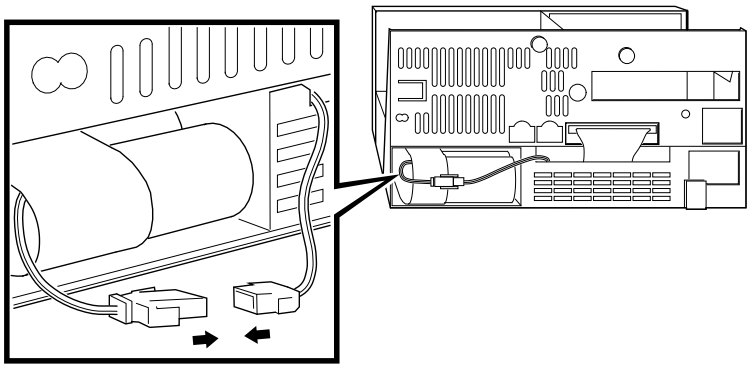
Caution

Do not connect the system battery if the power management software is not available.

1. Remove the rear cover of the system unit.
2. Remove the system unit cabinet cover.
3. On the front of the system unit, connect the battery connector to the power supply connector (Figure 3–14).

   If the battery is connected and charged and the application software with power management is installed, proper operation is confirmed by turning off the AC. The green DC OK light on the front of the unit should remain on for as long as it takes the application to complete the shut-down procedure which is somewhere between five and 120 seconds. If the light goes out immediately, the battery is not connected or is not charged. If the light remains on for more than 120 seconds, the power management software is not working properly.

Figure 3–14 Connecting the Battery Power Supply



MA-0169-93.DG

Note

The battery contains lead-acid cells and must be disposed of in a lawful manner.

Replacing the System Unit Cover

When all the options have been installed, then replace the cover. To replace the system unit cover:

1. Carefully slip the cover over the chassis so as not to damage the finger stock along the back of the chassis.
2. Secure the cover by tightening the captive screws.
3. Replace the rear bezel by inserting the tabs into the slots on the cover and snapping it in place.

BIOS Set-Up

Introduction

The basic input output system (BIOS) indicates that the DECpos detects an inconsistency between the system and its memory or disk configurations. For this reason, it is necessary to perform the BIOS setup procedures if you add system unit options.

Note

If all system unit options in your system are factory-installed, then you do not have to perform the procedures in this section.

Power-Up

If a configuration problem is detected during the power-on system test, then you will receive the following prompt:

- Press F1 to continue.

Caution

If a problem is detected during power-up, then you should enter the BIOS set-up screen and attempt to correct the problem. Failure to do so may cause damage to the disk.

- Press F2 to enter the BIOS set-up screen.

Set-Up Screen

The BIOS set-up screen appears if the power on system test (POST) in the BIOS detects an inconsistency between the actual system configuration and the BIOS set-up.

Otherwise, to enter the BIOS Set-Up screen, do the following immediately after powering on the system:

From Keyboard	Press
QWERTY/POS	Ctrl Alt S
POS	Ctrl Alt S

Note

If the system was in Protected Mode when the system was shut off, then the Protected Mode program must be exited through procedures described in the applications software documentation in order to invoke the BIOS set-up.

Settings

Use the following keys to navigate the screen and make changes:

Use the...	To...
Arrow keys	Move between fields
Space bar or Space key	Scroll through a list of parameters for the highlighted field
Escape key	Save changes

Use the arrow keys to advance the cursor between parameters. You can type over default memory parameters, if necessary.

You can scroll through the parameters by using the Space Bar on the QWERTY/POS keyboard or the Space key on the POS keyboard.

Follow the instructions on the screens.

Screen 1

Parameter	Entry
Date	Set the date
Time	Set the time
FDD A	3.5 in, 1.44 MB
FDD B	Not installed

HDD 1	Size	Type	Cyl	Head	PRE	LZ	Sect
	42 MB	17	977	5	300	977	17
	85 MB	48	548	8	0	548	38
	122 MB	48	980	15	-1	980	17

HDD 2	Not installed
Base memory	640 KB (default)
Extended memory	Set automatically; needs to be modified if the BIOS is shadowed in RAM.
Video Card	VGA/EGA
CPU Speed	Fast
Num Lock on Boot	Yes

Screen 2

Parameter	Entry
Shadow BIOS ROM	Enabled
EMS memory	Disabled
EMS memory size	0 K
Parallel port	Enabled
Serial port 1	Enabled
Serial port 2	Enabled
On board floppy	Enabled
On board fixed disk	Enabled

Software Installation

Introduction

The procedures for installing the software depend on the configuration of the DECpos and the operating system.

Software Loading Methods

If your operating system is not already loaded on the hard disk drive, then you may load the operating system using the floppy disk drive or downline load from an in-store processor or other system.

If Your System has...	Then...
An operating system	Do nothing.
A floppy disk drive	You can load the operating system from diskettes. A monitor is required during loading if a selection other than the default selections are desired. Follow the directions provided by the operating system diskettes and documentation.
A configured LAN card	You can download software from the in-store processor or another DECpos system.

Hard Disk Formatting

If the hard disk drive is factory installed, then it is already formatted with the entire disk designated for the operating system. If the HDD is field installed or a different partition of the HDD is desired, then it is necessary to reformat the HDD.

Formatting the HDD takes place during the installation of the operating system.

Operating System Installation From Diskette

To install the operating system from the diskette:

1. Insert Diskette 1 in the FDD and turn the system power on.
2. If the system is not in Protected Mode, then it should start loading from the diskette if the BIOS set-up is correct. Follow the instructions on the monitor.

Application Program Installation From Diskette

Most applications vendors provide diskettes that automatically boot if inserted in the FDD and if the power is turned on. Follow the procedures from the applications vendor, which are normally found on the diskette. Further instructions are usually displayed on the screen.

4

Operation

This chapter describes basic system hardware operating procedures.

Operating the Printer

Installing or Replacing the Ribbon Cassette

To install or replace the ribbon cassette:

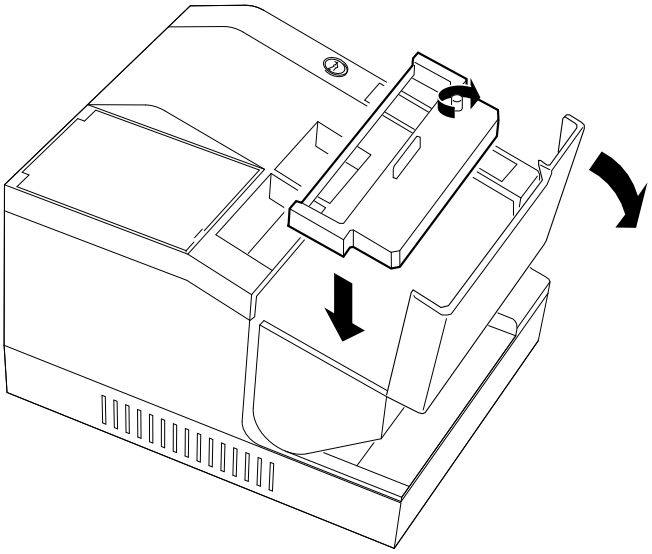
1. Turn on the power to the system unit and open the ribbon cover. The print head should move to the home position.
2. Remove the old ribbon cassette by grasping it on the tab and pulling upward.
3. Eliminate the slack in the new ribbon by turning the knob in the direction of the arrow (Figure 4–1).
4. Align the taut ribbon with the platen slot and press the new ribbon cassette into position.
5. Turn the ribbon feed knob 5 or 6 times in the direction of the arrow so that the ribbon is positioned between the head and the platen.

   Do not turn the ribbon knob in the direction opposite of the arrow.

To remove the ribbon cassette, pull it by the tab protruding from the top.

6. Close the ribbon cover.

Figure 4–1 Installing the Ribbon Cassette



Installing the Receipt Paper Roll

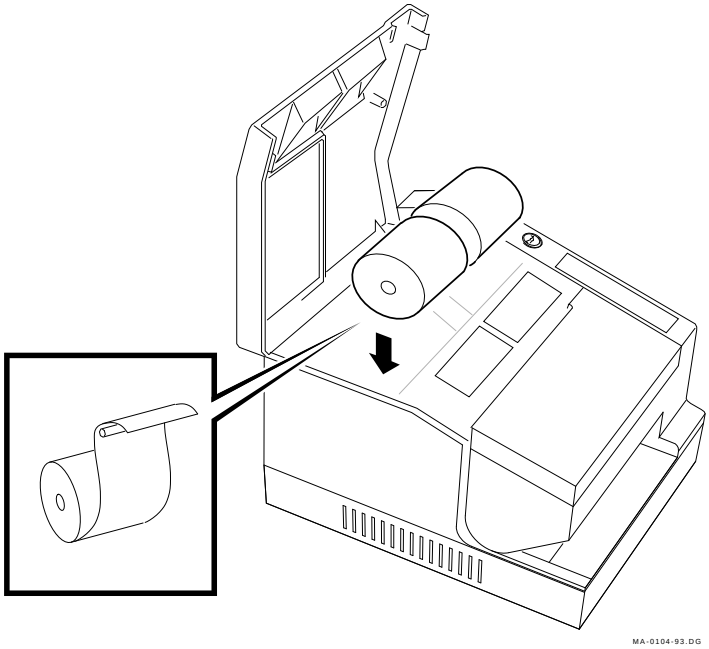
To install the receipt paper roll:

1. Unlock and open the paper cover on the top of the printer.
2. Place the paper roll into the paper holder located in the left rear section. Be certain that the paper feeds from underneath (Figure 4–2).

   The edge of the roll must be cut straight. If it is not, then fold the paper over once, crease it, and tear it on the crease.
3. Insert the end of the roll into the paper inlet. The paper will automatically feed into the printer and the receipt light will go off.

4. Tear off any excess paper on the tear-off edge.

Figure 4–2 Installing Paper



Installing the Journal Paper Roll

To install the journal paper roll:

1. Repeat the same steps you used to install the receipt paper roll, this time use the right paper holder.

   After the journal paper is automatically fed into the printer, the journal light will go off. Since the journal paper has a take-up spool, more paper needs to be fed from the roll.

2. Press the Journal Feed switch.
3. Fold the end of the journal paper and insert it into the groove on the take-up spool. Turn the spool two or three times to secure the paper.
4. Install the take-up spool into the printer by resting it in its slots.
5. Close the printer cover.

Removing the Receipt Paper Roll

To remove the receipt paper roll:

1. Open the receipt cover on the left side of the printer.
2. Remove the paper roll and tear off the paper near to where it enters the printer.
3. Press the Receipt Feed to eject the paper remaining in the printer.

Removing the Journal Paper Roll

To remove the journal paper roll:

1. Open the journal cover with the cover key.
2. To ensure that all printed information on the journal roll is preserved, press the Journal Feed switch to advance the paper and tear it off as it exits from the printer.
3. Remove the take-up spool and the journal tape from the take-up spool.
4. Lift the journal paper roll and tear off the paper near to where it enters the printer.
5. Press the Journal Feed switch to eject the paper remaining in the printer.

Turning on the Printer

To turn on the printer, press the On-Line switch.

Testing the Printer

To test the printer:

1. Turn off the power to the system unit.
2. Press and hold down the Receipt Feed switch on the printer while you turn on the system unit.

   The printer runs through its self-tests.

Forms Handling

The printer has the capability to print up to 88 columns on cut forms. Your applications program will notify you by means of a message on the CRT or customer display, or by a blinking indicator on the keyboard or printer that the system is waiting for you to insert a form. Insert the form as instructed in your cashier user's guide. The application may require that you index a key to inform the software to proceed or the software may proceed automatically upon detecting that the form has been inserted.

When the printing of the form is complete, most applications software will instruct you to remove the form and index a key to instruct the system that the form has been removed.

Operating the Cash Drawer

Removing the Drawer

Should money become caught inside the cash drawer or if your store procedures require that the inside of the drawer be inspected periodically, then it will be necessary for you to remove the drawer. To remove the drawer:

1. Open the drawer by performing a No Sale or a Permanent Log-Off, or by using the key or pressing the emergency release under the drawer.
2. Remove the money tray and set it aside.
3. Grasp the drawer by the front, and with your index fingers, depress the catch buttons located on the inside front of the drawer and pull the drawer towards you to disengage it from the slides.

Replacing the Drawer

To replace the drawer:

1. Extend the drawer sides fully, then place the drawer on the slides. Push the drawer towards the rear of the register until the rear of the drawer engages the protrusions on the slides, and the buttons under the drawer engage the slots at the front of the slides, and the catch buttons engage the slots in the slides.
2. Open the drawer if it is closed, and replace the money tray.

Opening the Drawer Without Power

If there is a power failure, and it is necessary to close the store, then the money tray should be removed from the cash drawer and placed in the safe. If your store procedure is to use a key to unlock the cash drawer, then insert it in the lock and turn the key clockwise as far as it will go to release the drawer. Return the key lock to the center position and remove the key.

If your store procedure is to use the emergency release access hole, then lift the cash drawer and insert your finger straight upward through the hole located on the underside of the cash drawer until it comes in contact with a pin, and push it towards the front of the cash drawer.

Locking the Drawer

To secure the drawer and to prevent it from being opened by the DECpos, insert the key in the lock and turn it counterclockwise. Remove the key. The drawer can only be opened by the key.

Normal Mode of Operation

For normal mode of operation with the DECpos, turn the key lock to the center position.

Operating the Terminal

Introduction

Terminal operation is controlled primarily by the application software. This section describes the typical operation of the POS applications software.

Consult your applications software documentation for procedures specific to your applications.

Turning on the Power

To turn on the system power, depress the power switch on the front of the system unit. The dc indicator shows that the power is on. It may take up to a minute for the software to load from the hard disk drive or to be downline loaded from the server. The loading activity will appear on the monitor. Wait until the system prompts you to proceed.

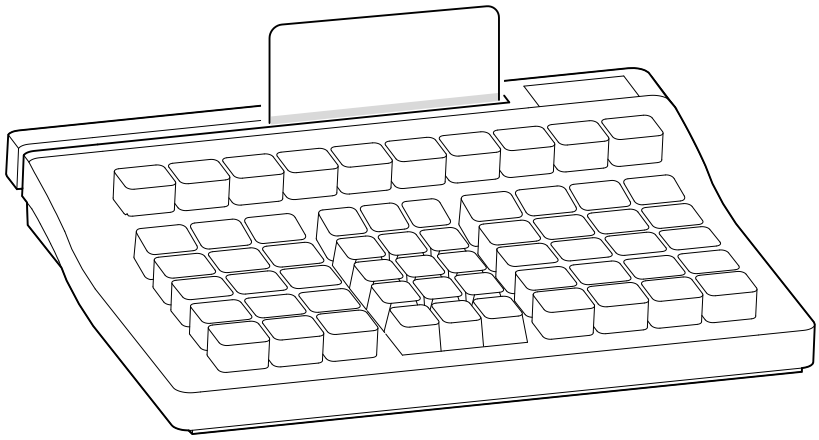
If there is no activity on the monitor, then check to see that the monitor power switch is in the On position and that the brightness and contrast controls are adjusted properly.

Accessing the Terminal

Users can access the terminal either by using a DECpos identification card or by entering data. The accessing method which is available on your system depends on the applications software.

If the Application Software...	Then...
Recognizes the DECpos ID card	Place the card at the right side of the magnetic card slot in the keyboard with the magnetic stripe facing you (Figure 4–3). Position the card in the right side of the slot and slide it smoothly to the left, away from the keyboard. The screen indicates whether the card was successfully read.
Does not recognize the ID card	Enter in your cashier number and password as instructed by the application software.

Figure 4–3 Using the DECpos ID Card



MA-0102-93

For the first log-on of the shift or day, the drawer should be open for you to insert the money tray. The application software may ask you to key in the amount of the change bank.

Ringing Sales Transactions

This section describes general procedures for sales transactions. Refer to the applications software documentation for more specific details.

1. Register prices in one of four ways:
   - Scan the items.
   - Enter the PLU number and press the appropriate entry key.
   - Enter the SKU number and price and press the appropriate entry key.
   - Enter the prices and a department.
2. Identify the total amount due on your monitor or customer display.
3. Ask the customer how they want to pay, then accept the payment.
4. Enter the amount and type of tender.

5. Determine if any change is owed the customer.
   a. If you indicate cash paid to the system, then the cash drawer opens.
   b. If payment is by credit card, then hold the card with the magnetic stripe facing down and towards you, and pass the card right to left through the credit card slot. Place the signed credit vouchers in the front slot of the drawer.
   c. If payment is by check, then after completing the transaction, place the checks in the front slot of the drawer.

Temporary Log-Off

Should you need to leave the terminal, execute a Temporary Log-Off as instructed in the application user's guide. This will prevent access to your cash drawer. If the terminal has only one cash drawer, then no other cashier will be able to log on this terminal until you perform a Permanent Log-Off.

Permanent Log-Off

When you are finished your shift or plan to move to another terminal, execute a Permanent Log-Off as directed in your application user's guide. The drawer will open. You should remove your money tray, place the locking lid over it if you have one, and take any report from the printer and return both the money tray and the report to the cash office in accordance with your store policy. The drawer may be left open or closed according to store policy.

Closing the Terminal

The terminal closing procedure usually requires that all cashiers be permanently logged off. The procedure as described in your applications user's guide may be performed from the terminal or remotely.

Turning Off the Power

If your store procedure requires that the terminal power be turned off, then depress the power switch on the system unit. This switch controls the power to the entire DECpos system including the monitor and hand held scanner.

Caution

The DECpos terminal contains a battery to protect the memory, which is maintained at full charge so long as the DECpos is connected to the power source. Do not disconnect the DECpos from the ac source and do not shut off the circuit breakers to the DECpos.

5
Troubleshooting

This chapter describes basic troubleshooting procedures that can be performed before calling for a service technician. Following these procedures can help identify and resolve problems except for those caused by defective equipment.

Note

The detailed isolation of faulty components is beyond the scope of this manual.

Troubleshooting Your System

Introduction

To troubleshoot your DECpos system:

1. Save all data on the system.
2. Turn off the system power. Wait 60 seconds and then turn on the system power.
3. Check for loose cables and connections.
4. Check the system unit and printer indicator lights.
5. Refer to the troubleshooting table in this chapter for specific problem descriptions.
6. Refer to Chapter 6.

General

All of the DECpos peripherals connect directly to the system unit. If all the cables are connected and power is available, then the fault may be in the:

- Software
- Part of the system unit that drives the particular peripheral
- Cable that connects the peripheral to the system unit
- Peripheral device

Multiple Systems

When there are multiple systems in the store, you can substitute a working peripheral or cable from a good system for a suspect peripheral or cable on the failed system to help determine if the fault is in the system unit or the peripheral.

- If the system works after substituting a working peripheral or cable, then the suspect peripheral or cable is most likely faulty. One can confirm this by plugging the peripheral or cable from the faulty system into the known good system. If the known good system does not work after substitution of the peripheral or cable from the faulty system, then the problem is most likely the peripheral or cable.
- If the failed system still does not work after substituting a peripheral from a working system and if the peripheral from the failed system works on the working system, then the problem is in the system unit hardware or the software.

Caution

Be sure to turn off the power to the DECpos system when connecting or disconnecting any cable to prevent damage to the system unit and peripherals. Plugging in the printer power cord while the system unit is on can cause a temporary overload. The DECpos power supply has internal protection circuits that shut the power supply down in the event of an overload. The DECpos may take up to two minutes to shut down all power. Wait until the dc indicator light goes off.

Turn off the power to the system unit and wait for at least one minute for the internal protection circuit to reset.

Troubleshooting Table

Use the following table to troubleshoot your DECpos system.

Problem Area	Possible Cause	Action
System		
There is no response when the system is turned on and the DC indicator on the system unit is off.	The system is not plugged in.	Turn off the system, plug the system cable into the wall outlet, and turn on the system again.
	There is no ac power.	Check the fuse or circuit breaker.
	Voltage selector switch is set incorrectly.	Use 115 V for North America. Use 230 V for anywhere outside of North America.
	The power supply is faulty.	Replace the power supply.
The system does not start up from the hard disk.	The operating system software is not on the disk.	Install the operating system software on the hard disk.
	Requested partition does not exist or is not formatted.	Check the hard disk partitions. Format the partition. Re-partition the drive, if necessary.
	There is no software on the requested partition.	Install the software on the partition.
The system does not start up from the diskette drive.	The diskette does not contain the operating system start-up files.	Insert a diskette that contains the operating system.
	The diskette drive is empty.	Insert a diskette that contains the operating system.
Keyboard		
There is no response to keyboard commands.	The keyboard is password-protected.	Enter the keyboard password.

Troubleshooting Table

Problem Area	Possible Cause	Action
Keyboard		
	The DECpos ID card has not been passed through the magnetic stripe reader.	Pass the DECpos ID card through the magnetic card reader.
	The keyboard is not connected.	Plug the keyboard into the keyboard jack on the system unit.
	The keyboard is plugged into the mouse port.	Connect the keyboard to the keyboard port.
	The numeric keypad does not enter digits.	Depress the Num Lock key. Change the BIOS set up if the keyboard does not start up with the NUM Lock set.
Customer Display		
The customer display does not work.	The cable is not connected.	Check that the cable is connected to the system unit.
	Either the software driver or application program is incorrectly configured.	See if the self-test works when the system power is turned on. If it works, then check that the driver and application are properly installed.
Monitor		
The power is on, but there is no monitor display.	Brightness and contrast controls are not set properly.	Adjust the brightness and contrast controls.
	The monitor is off.	Turn on the power to the monitor.
	The monitor signal cable is not plugged into the VGA connector on the system unit.	Check the monitor signal cable connection.

Problem Area	Possible Cause	Action
Monitor		
	The monitor power cable is not plugged into the ac outlet on the system unit.	Check the monitor power cord connection.
Cash Drawer		
Cash drawer does not open.	The cash drawer cable is not connected.	Check that the cash drawer is connected to the $1 connector on the back of the system unit.
	The drawer is locked.	Ensure that the notch on the center part of the drawer lock is in the center position.
Printer		
The POS printer does not work.	The Printer Power indicator is not lit.	Check the printer power cable connections. If that does not work, then try another printer power cable.
	The printer signal cable is not connected or is faulty.	Check the printer signal cable connections. If that does not work, then try another printer signal cable.
	The Printer On-Line indicator is not lit.	Depress the On-Line control switch on the printer.
	Receipt Out or Journal Out indicators are lit.	Replace the paper roll or check that the paper roll is in the proper position.
	Slip indicator is blinking.	Insert the slip form in the printer.

Troubleshooting Table

Problem Area	Possible Cause	Action
Printer		
	DIP switches located under the printer are set incorrectly.	See Appendix C for correct settings. To read the settings, execute the printer self-test by depressing the Receipt Feed switch as the system power is turned on.
	Printer is connected to the incorrect serial port.	Check that the printer signal cable is connected to serial port 1 or, in some cases, to the serial port specified by the software application.
	The printer is defective.	If there is power to the printer and the self test does not execute, then replace the printer.
Printer appears to be printing, but no characters appear on the paper.	The ribbon is not installed or is improperly installed.	Install a ribbon cassette.
The characters on the paper are very light.	The ribbon is worn out.	Replace the ribbon cassette.
	The ribbon is not properly inserted.	Remove the ribbon cassette and re-insert the ribbon.
The paper does not feed through the receipt or journal stations.	The paper is jammed in the paper path.	Open the printer throat and examine the paper path. Remove any torn off pieces of paper.
Journal paper does not spool.	The paper is not inserted in the slot on the take-up spool or the spool is not fully seated in the holder.	Check that the paper is in the slot and that the spool is properly installed.

Problem Area	Possible Cause	Action
LAN Configurations		
The power is on but the system is hung or a RAM error message is displayed (LAN card is installed).	The LAN card is set to the same memory address space.	Change the address of the adapter.
Only one of the systems does not boot up from the server.	The LAN cable is not properly connected at the system or at the wall box near the system.	Check the connections and plug in any cable that has become disconnected.
None of the systems boot up from the server.	The server is not turned on.	Turn on the power to the server and start the server program.
	The server program is not executing.	Start the server program.
	The LAN cable at the server or at the wall box near the server is not connected.	Check the connections and plug in any cable that has become disconnected.
There is no response from the server (on this system only) when items are scanned, or when a cashier tries to log on, or payment authorization is requested.	The LAN cable is disconnected at the system or at the wall box near the system.	Check the LAN cable connections and plug in any cable that has become disconnected.

Troubleshooting Table

Problem Area	Possible Cause	Action
LAN Configurations		
There is no response from the server to any system when items are scanned, a cashier tries to log on, or payment authorization is requested.	The server is not turned on.	Check that the server is plugged into the ac power and that it is turned on.
	The LAN cable is not plugged into the server or the wall box near the server.	Check the server LAN cable connections. Plug in any cable that has become disconnected.
	The server program is not executing.	Start the server program.
WAN Configurations		
There is no response from remote payment authorization service.	The modem cable is not plugged into the modem or the telephone connection box near the system.	Check the modem cable connection. Plug in any cable that has become disconnected.
	The cable between the external modem and the system is not connected at the system or at the modem.	Check the cable connections at the system and the modem.
	The external modem has no power.	Check that the ac outlet is supplying power to the modem by ensuring that the modem power cord is plugged into the modem and the wall outlet, and that the power switch to the modem is turned on.

Problem Area	Possible Cause	Action
WAN Configurations		
	The external modem is not in data mode.	Ensure that the controls on the external modem are in data mode.

6

Preventive Maintenance

This chapter describes how to maintain, service, and store the DECpos 320sx system.

User Maintenance

Maintaining the DECpos

Routine maintenance of the DECpos should be limited to cleaning the exterior with a non-abrasive cleaner that is safe to use on plastics, and vacuuming the paper dust from the printer.

Caution

Do not use scouring powders or cleaners with acetone or petroleum distillate solvents because they scratch, discolor, or dissolve the plastic materials.

Service

Servicing your DECpos

If your DECpos is not operating correctly, then contact your company's Help Desk for assistance in resolving the problem before contacting Digital or your Digital Business Partner for service.

To contact Digital for service in the U.S., call 1-800-354-9000 between 8:30 AM and 8 PM Eastern time. In other countries, contact your Digital service representative.

Shipment

Preparing the DECpos for Shipment

If the DECpos must be shipped, it should be carefully packed, preferably in the original cartons with its original protective packing materials to prevent damage.

Caution

The DECpos has a battery that will discharge within 72 hours of being disconnected from the ac source. If you expect that the terminal will not be connected to the ac power for a period of more than two weeks, then it is recommended that the DECpos be prepared for storage prior to shipment.

Storage

Preparing the DECpos for Storage

The DECpos has a battery that will discharge within 72 hours of the DECpos being disconnected from the ac power source. If the battery is left in a discharged condition for more than 15 days, then it will be permanently damaged to the point where it will not have full capacity. Protect the battery by doing the following (see Chapter 3):

1. Disconnect the DECpos from the ac power source.
2. Remove the system unit cover.
3. Unplug the battery cable momentarily, then reconnect it.
4. Replace the system cover.

A

Specifications

This appendix lists the following specifications for the DECpos 320sx system:

- System unit
- Mass storage interfaces
- Bus
- Video
- Peripheral interfaces
- Floppy diskette drive
- Environment
- Acoustics

DECpos 320sx Specifications

System Unit

The following are the specifications for the system unit.

CPU	AMD 80386sx 20 MHz
RAM	Addresses 1, 2, 4 , 8, or 16 mB with access time of 70 or 80 ns
Power requirements	88 - 132 V 176 - 264 V 47 - 63Hz

Mass Storage Interfaces

Interface for floppy drive and IDE hard disk drive

Bus

2 ISA 16-bit slots for half size cards

Video

VGA with 512-kB video RAM

Peripheral Interface Ports

This section shows the pin assignments for the following peripheral interface ports:

- RS-232C serial; two ports (⇌1, ⇌2)
- RS-232C serial +5 V power; three ports (⇌A, ⇌B, ⇌C)
- Customer display port (⇌D)
- Parallel port
- Keyboard and mouse ports
- VGA port
- Cash drawer 1 and 2 ports ($1, $2)
- Printer power port (+24 V)
- Printer signal

The following pin assignments are for serial ports ⇌1 and ⇌2. See Figure A–1.

Pin	Assignment
1	Carrier detect
2	Receive data
3	Transmit data
4	Data terminal ready
5	Signal ground
6	Data set ready
7	Request to send
8	Clear to send
9	Ring indicator

The following pin assignments are for serial ports ⇌A, ⇌B, and ⇌C. See Figure A–1.

Pin	Assignment
1	Frame ground
2	Receive data
3	Transmit data
4	Data terminal ready
5	Signal ground
6	Data set ready
7	Request to send
8	Clear to send
9	+5 V

Figure A–1 shows the pin assignments for the RS-232C serial port.

Figure A–1 RS-232C Serial Port

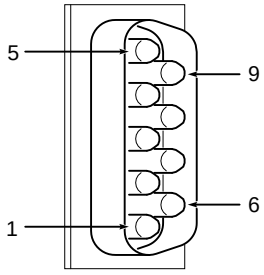
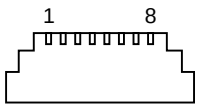


Figure A–2 shows the pin assignments for the customer display port.

Figure A–2 Customer Display Port

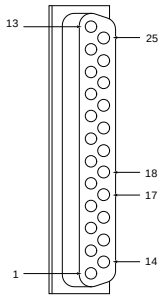


The following pin assignments are for the serial port ⇌D.

Pin	Assignment
1	Frame ground
2	Transmit data
3	Receive data
4	Clear to send
5	Data terminal ready
6	Signal ground
7	20-29 VDC
8	Power return

Figure A–3 shows the pin assignments for the parallel I/O port.

Figure A–3 Parallel I/O Port



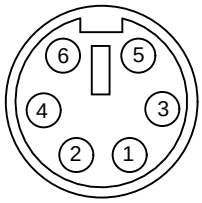
The following pin assignments are for the parallel port. See Figure A–3

Pin	Assignment
1	Strobe
2	Data bit 0
3	Data bit 1
4	Data bit 2
5	Data bit 3
6	Data bit 4
7	Data bit 5
8	Data bit 6
9	Data bit 7
10	Acknowledge
11	Busy
12	Paper end
13	Select
14	Auto feed
15	Error
16	Initialize

Pin	Assignment
17	Select in
18-25	Ground

Figure A–4 shows the pin assignments for the keyboard and mouse connectors.

Figure A–4 Keyboard and Mouse Connectors

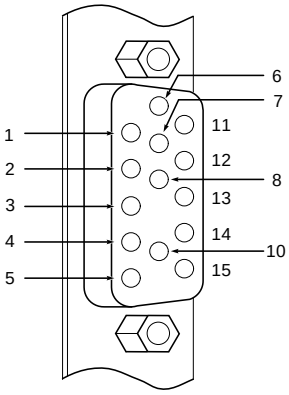


The following pin assignments are for the keyboard and mouse connectors.

Pin	Assignment
1	Data
2	Reserved
3	Ground
4	+5 Vdc
5	Clock
6	Reserved

Figure A–5 shows the pin assignments for the video port connector.

Figure A–5 Video Port Connector



The following pin assignments are for the video port connector.

Pin	Assignment*
1	Red video
2	Green video
3	Blue video
4	Monitor ID bit 2 (not used)
5	Ground
6	Red return (ground)
7	Green return (ground)
8	Blue return (ground)
9	Key (no pin)
10	Sync return (ground)
11	Monitor ID bit 0 (not used)
12	Monitor ID bit 1 (not used)
13	Horizontal sync

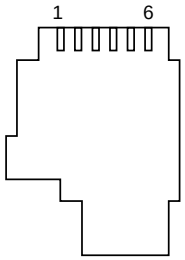
*Monochrome monitors use green video for all video input and ignore red video and blue video. Monitor ID bits are not used. The monitor type is determined when your system is turned on.

Pin	Assignment*
14	Vertical sync
15	Not used

*Monochrome monitors use green video for all video input and ignore red video and blue video. Monitor ID bits are not used. The monitor type is determined when your system is turned on.

Figure A–6 shows the pin assignments for the cash drawer ports.

Figure A–6 Cash Drawer 1 and 2 ($1, $2)

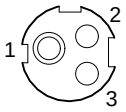


The following pin assignments are for the cash drawer ports $1 and $2.

Pin	Assignment
1	Frame ground
2	Solenoid
3	DSS
4	+24 V solenoid
5	No connection
6	DSS ground

Figure A–7 shows the pin assignments for the printer power connector.

Figure A–7 Printer Power Connector

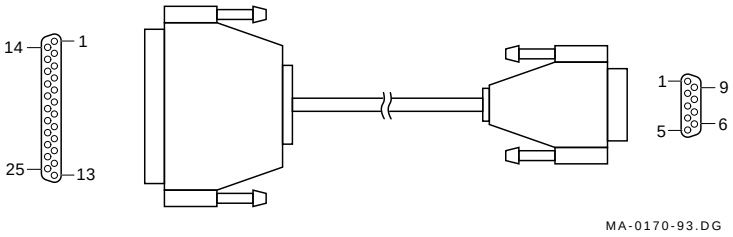


The following pin assignments are for the +24 VDC printer power connector.

Pin	Assignment
1	+24 VDC
2	Ground
3	No connection

Figure A–8 shows the pin assignments for the printer signal connector.

Figure A–8 Printer Signal Connector



The following pin assignments are for the printer signal cable. The 25-pin male sub-D end of the cable connects to the printer; the 9-pin female sub-D end connects to the system unit.

25-Pin Connection	9-Pin Connection	Assignment
P1-1, shield	J1-1, shield	Frame ground
P1-2	J1-2	Receive data
P1-3	J1-3	Transmit data
P1-6	J1-4	Data terminal ready
P1-7	J1-5	Signal ground
P1-20	J1-6, J1-8	Data set ready, clear to send
P21-25 not used	–	–
P1-8 to P1-19 not used	J1-7, J1-9 not used	–

Required Option	RAM	1, 2, 4, 8, or 16 mB of DRAM with 70 or 80 ns access time
Floppy Diskette Drive	Optional	

Environment

The following are the environmental specifications for the DECpos system.

Air Temperature

Operating	10°C (50°F) to 35°C (104°F)
Storage	10°C (50°F) to 35°C (104°F)

Humidity

Operating	20% to 85% non-condensing
Storage	10% to 95% non-condensing

Acoustics

The following table shows preliminary declared acoustics values per ISO 9296 and ISO 7779.

	Sound Power Level LwAd, B*		Sound Pressure Level LpAm, dBA* (Operator Position)	
Product	**Idle**	**Operate**	**Idle**	**Operate**
MT10A (MTXNA operate)	5.8	7.8	45	70
MT102-AA/B (MTXNA operate)	6.0	7.8	45	70
(MT1RA operate)	6.0	6.0	45	46

*Current values for specific configurations are available from Digital representatives. 1 B = 10 dBA.

B

DECpos QWERTY/POS Keyboards

This appendix shows the POS keyboard and the full view of the QWERTY/POS keyboard.

This appendix also shows the following QWERTY/POS country-specific alphanumeric keys.

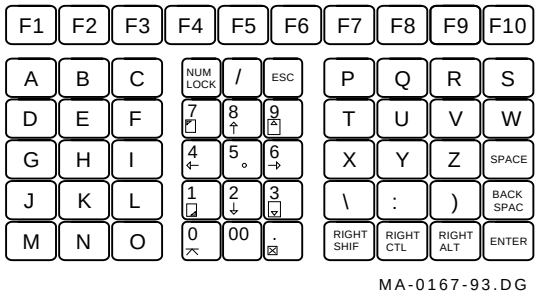
- U.S.
- Danish
- French
- French Canadian
- German
- Swiss/German
- Norwegian
- Spanish
- Swedish
- United Kingdom

Keyboards

POS

Figure B–1 shows the POS keyboard.

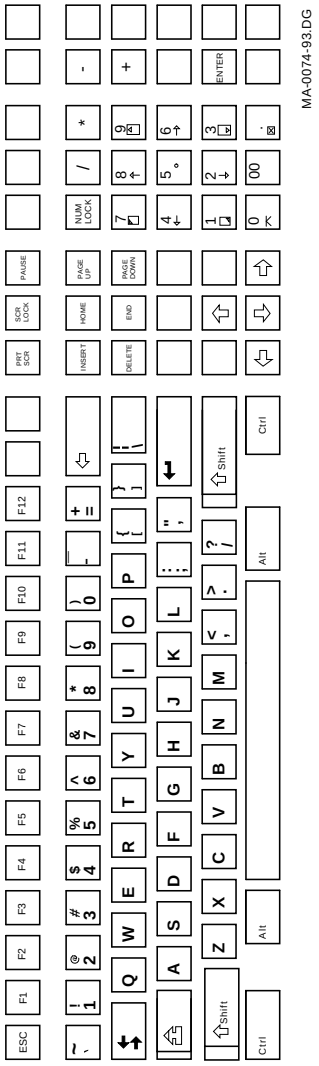
Figure B–1 POS Keyboard



QWERTY/POS

Figure B–2 shows the full view of the QWERTY/POS keyboard.

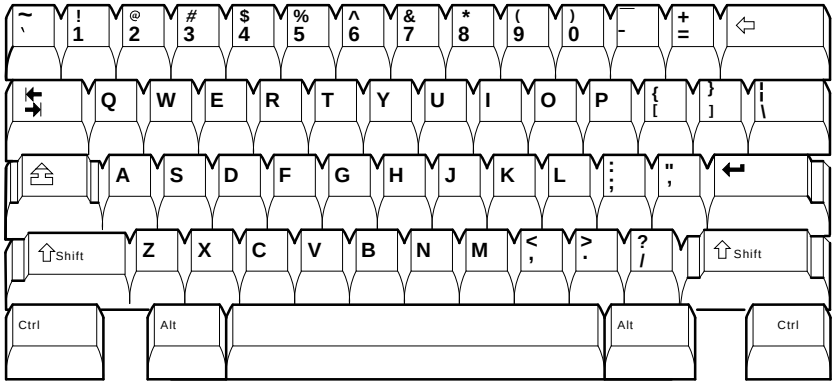
Figure B–2 QWERTY/POS Keyboard–Full View (U.S. Model)



U.S.

Figure B–3 shows the United States keyboard.

Figure B–3 United States Keyboard

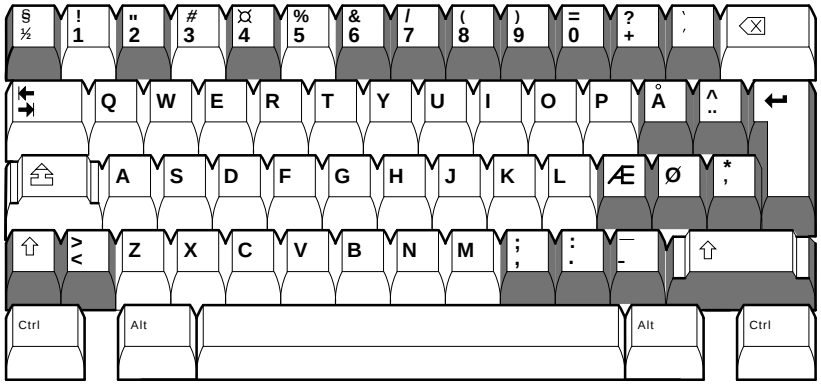


MA-0109-93.DG

Danish

Figure B–4 shows the Danish keyboard.

Figure B–4 Danish Keyboard

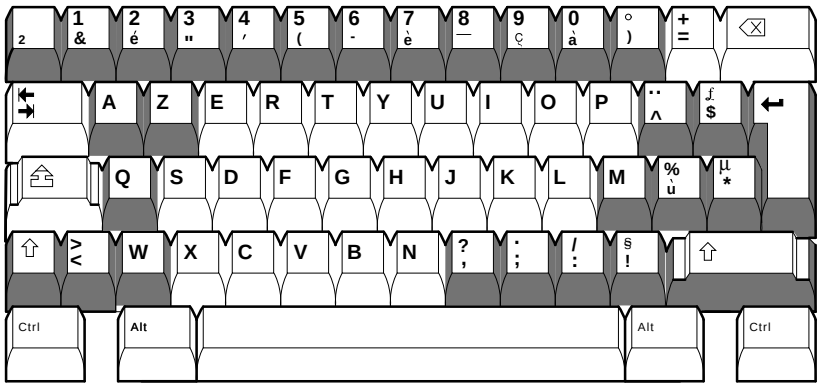


MA-0110-93.DG

French

Figure B–5 shows the French keyboard.

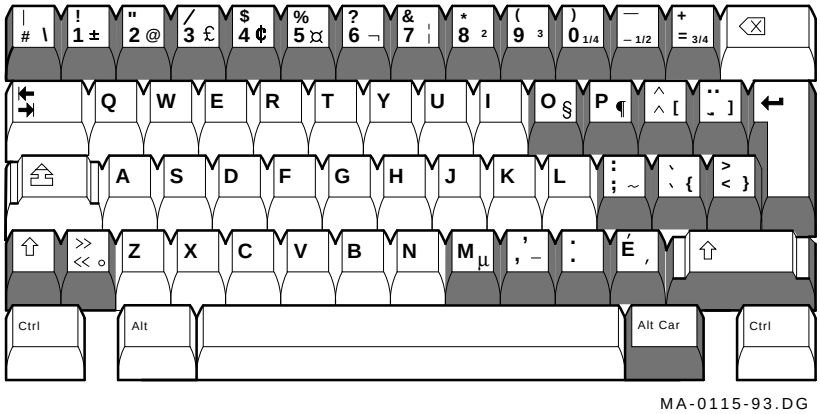
Figure B–5 French Keyboard



French Canadian

Figure B–6 shows the French Canadian keyboard.

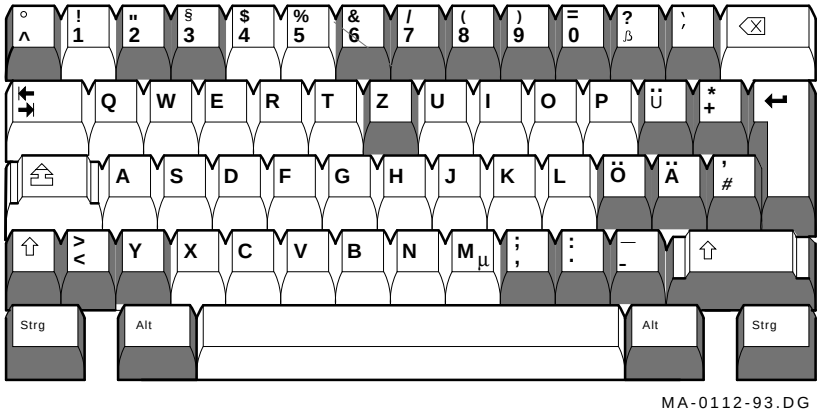
Figure B–6 French Canadian Keyboard



German

Figure B–7 shows the German keyboard.

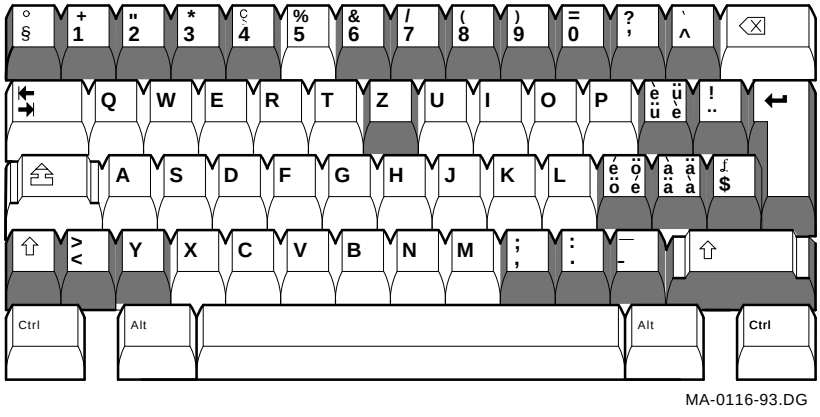
Figure B–7 German Keyboard



Swiss/German

Figure B–8 shows the Swiss/German keyboard.

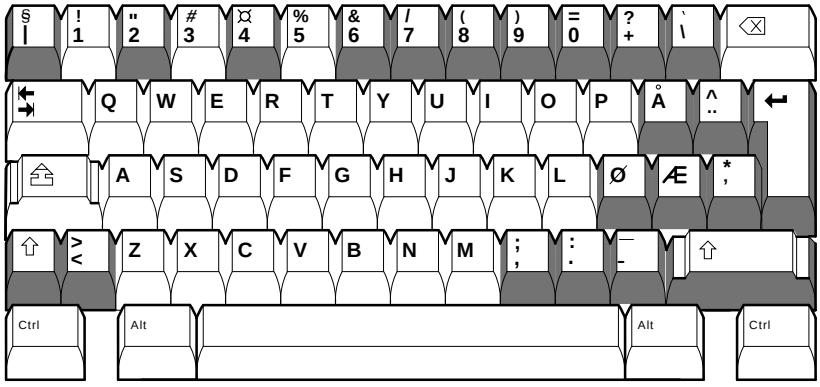
Figure B–8 Swiss/German Keyboard



Norwegian

Figure B–9 shows the Norwegian keyboard.

Figure B–9 Norwegian Keyboard

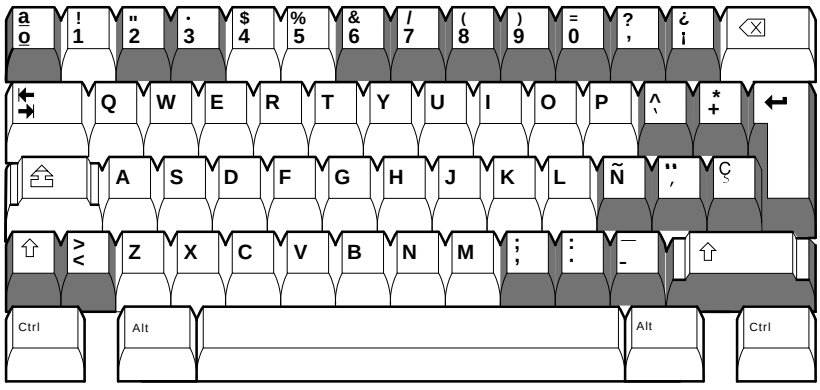


MA-0117-93.DG

Spanish

Figure B–10 shows the Spanish keyboard.

Figure B–10 Spanish Keyboard

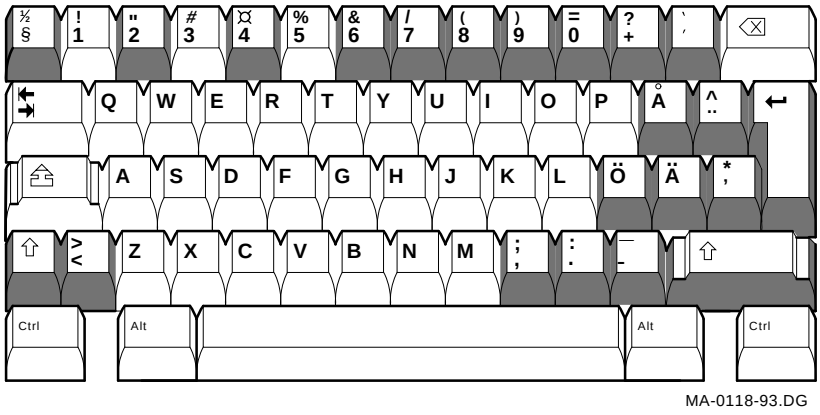


MA-0113-93.DG

Swedish

Figure B–11 shows the Swedish keyboard.

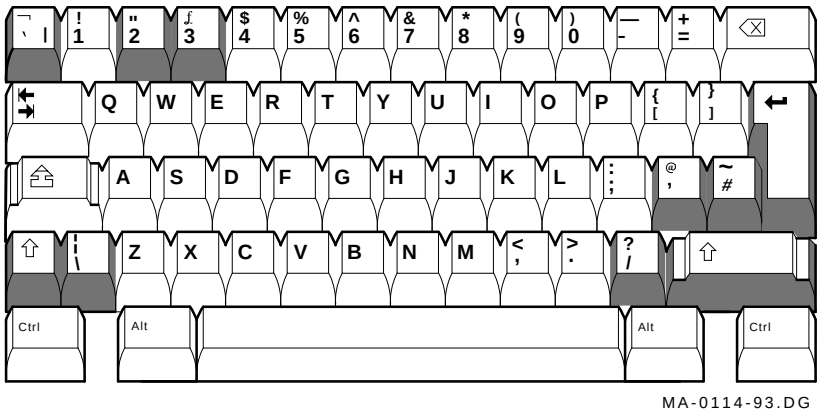
Figure B–11 Swedish Keyboard



United Kingdom

Figure B–12 shows the United Kingdom keyboard.

Figure B–12 United Kingdom Keyboard



C

DECpos 2.5 Station Printer DIP Settings

This appendix shows the dual inline package (DIP) switch settings located on the bottom of the station printer.

DIP Switch Settings

DSW1

The DSW1 switch has eight switches.

DSW1	Function	On	Off
1	Auto line feed	Always valid	Always invalid
2	Selects font (default)	9 x 9	7 x 9
3	On-line switch function (default)	Enable	Disable
4	Selects interface	Always On	–
5	Selects international character set (default)		
6	Refer to International Character Set Selection.		
7			
8			

International Character Set Selection

The following table lists the switch settings for the international character set for each country.

Country	SW 1-8	SW 1-7	SW 1-6	SW 1-5
U.S.	On	On	On	On
Danish	On	Off	On	On
French	On	On	On	Off
German	On	On	Off	On
Norwegian	Off	On	On	Off
Spanish	On	Off	Off	Off
Swedish	On	Off	On	Off
United Kingdom	On	On	Off	Off

DSW2

The DSW2 switch has eight switches.

DSW2	Function	On	Off
1 2	Selects the receive buffer capacity. Refer to Switch 2—Receive Buffer Capacity.		
3 4	Selects roll paper width. Refer to Switch 2—Roll Paper Width.		
5	Fixed	–	Always Off
6	Not used	–	–
7	Not used	–	–
8	Switches SLCT signal	Cover open	+5 V

Switch 2—Receive Buffer Capacity

The following table lists the switch settings for Switch 2–Receiving Buffer Capacity.

Receive Buffer Capacity	SW 2-2	SW 2-1
32 bytes (serial)	On	On
128 bytes	On	Off
256 bytes	Off	On
2048 bytes	Off	Off

Switch 2—Roll Paper Width

The following table lists the switch settings for Switch 2–Roll Paper Width.

Roll Paper Width	SW 2-4	SW 2-3
Invalid	On	On
58 mm	On	Off
70 mm	Off	On
70 mm	Off	Off

DSW3

The DSW3 switch has ten switches.

DSW3	Function	On	Off
1	Data word length	7 bits	8 bits
2	Parity	Valid	Invalid
3	Selects parity	Even	Odd
4 5 6	Selects transmitting speed Refer to Switch 3—Transmission Speed		
7	Data receive error	Ignored	Prints “?”
8	Handshaking	XON/XOFF	DTR/DSR
9	Not used	–	–
10	Not used	–	–

Switch 3—Transmission Speed

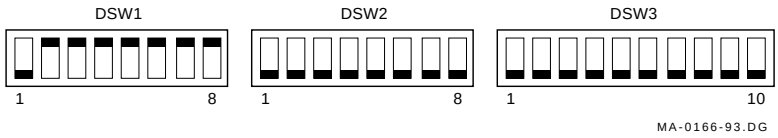
The following table lists the switch settings for Switch 3–Transmission Speed.

Transmission Speed (BPS)	SW 3-6	SW 3-5	SW 3-4
Invalid	On	On	On
150	On	On	Off
300	On	Off	On
600	On	Off	Off
1200	Off	On	On
2400	Off	On	Off
4800	Off	Off	On
9600	Off	Off	Off

DIP Switch Setting Example

Figure C–1 shows the DIP switch settings for U.S. English.

Figure C–1 U.S. DIP Switch Setting



D

DECpos Part Numbers List

This appendix lists the DECpos 320sx system part numbers.

Parts List

DECpos Parts List

The following table lists the DECpos 320sx system part numbers.

Part Number	Description
Unique Options	
MT1MA-AA	1 MB SIMM memory, 80 ns
MT1MA-AB	2 MB SIMM memory, 80 ns
MT1MA-AC	4 MB SIMM memory, 70 ns
MT1MA-AD	8 MB SIMM memory, 70 ns
MT1MA-AF	16 MB SIMM memory, 70 ns
MT1RA-AA	40 MB 2.5-inch IDE HDD, cable and hardware
MT1RA-BA	85 MB 2.5-inch IDE HDD, cable and hardware
MT1RA-CA	120 MB 2.5-inch IDE HDD, cable and hardware
MT1RB-AA	3.5-inch (1.44-MB) FDD, cable and hardware
MTXVC-LA	2 x 20-mm customer display (24 V)

Part Number	Description
Unique Options	
MTXLB-AA	60-key POS keyboard with integral magnetic stripe reader
MTXLC-AA	Cashier ID cards, package of 10
MTXLA-AA	121-key QWERTY/POS keyboard with integral magnetic stripe reader
MTXNA-AA	2.5 station serial printer, including printer power cable (MTXNX-AA), and printer interface cable (MTXNX-AB)
MTXNX-AA	MTXNA printer power cable, DIN 24 V
MTXNX-AB	MTXNA printer interface cable, 25-pin male sub-D to 9-pin female sub-D
MTXNX-BA	MTXNA printer paper roll, case of 60
MTXNX-BB	MTXNA printer ribbon, package of 10
MTXHC-AA	20 x 20-inch cash drawer with domestic money tray—random keylocks
MTXHC-AB	20 x 20-inch cash drawer with international money tray—random keylocks
MTXHC-BA	20 x 20-inch cash drawer with domestic money tray-like keylocks
MTXHC-BB	20 x 20-inch cash drawer with international money tray-like keylocks
MTXHX-AA	U.S. cash drawer money tray
MTXHX-AB	International cash drawer money tray
MTXHX-BA	U.S. locking money tray cover
MTXHX-BB	International locking money tray cover
MTXLD-AA	PIN pad
MTXHA-AA	Scale
MTXHB-AA	Scanner
MTXVA-AA	DECpos 9-inch VGA monochrome monitor (120 V)

Part Number	Description
Unique Options	
MTXVA-AB	DECpos 9-inch VGA monochrome monitor (240 V)
MTXVA-AC	DECpos 9-inch VGA monochrome monitor universal voltage
Country Kits for QWERTY/POS Keyboard	
MTXKA-AD	DECpos Denmark/Danish QWERTY/POS country kit with keycaps, documentation, and power cord (220 V)
MTXKA-AE	DECpos UK & Ireland/English QWERTY /POS country kit with keycaps, documentation, and power cord (240 V)
MTXKA-AG	DECpos Germany & Austria/German QWERTY/POS country kit with keycaps, documentation, and power cord (220 V)
MTXKA-AL	DECpos Switzerland/German QWERTY /POS country kit with keycaps, documentation, and power cord (220 V)
MTXKA-AM	DECpos Sweden/Swedish QWERTY/POS country kit with keycaps, documentation, and power cord (220 V)
MTXKA-AN	DECpos Norway/Norwegian QWERTY/POS country kit with keycaps, documentation, and power cord (220 V)
MTXKA-AP	DECpos France & Belgium/French QWERTY/POS country kit with keycaps, documentation, and power cord (220 V)
MTXKA-AS	DECpos Spain/Spanish QWERTY/POS country kit with keycaps, documentation, and power cord (220 V)

Part Number	Description
Additional Options	
DE203-AA	LAN card DEC EtherWORKS 3 TURBO (ThinWire)
DE204-AA	LAN card DEC EtherWORKS 3 TURBO TP (Twisted Pair)
DE205-AA	LAN card DEC EtherWORKS 3 TURBO PLUS (ThinWire, Thickwire, Twisted Pair)
PCXBF-AA	Modem 2400 bits per second data; 9600 bits per second FAX
PCXCF-AA	Modem 9600 bits per second data; 9600 words per second FAX
PCXDF-AA	Modem 14,400 bits per second data; 14,400 words per second FAX
PC7XV-KA	14-inch VGA monochrome monitor, northern hemisphere (120 V)
PC7XV-KB	14-inch VGA monochrome monitor, northern hemisphere (240 V)
PC7XV-BA	14-inch VGA color monitor, northern hemisphere (120 V)
PC7XV-BB	14-inch VGA color monitor, northern hemisphere (240 V)

E

MS–DOS Software License Agreement

This appendix includes the End User Software License Agreement for the MS–DOS operating system. Each DECpos system unit includes a license to use MS–DOS. Hard disk drives that are factory installed have the MS–DOS operating system loaded on them.

Media and documentation for MS–DOS may be ordered separately.

digital™

End User Software License Agreement

License: Digital Equipment Corporation grants you the right to use the enclosed software program (the "Software"). You will not use, copy, modify, rent, sell or transfer the Software or any portion thereof except as provided in this Agreement.

You May: 1. Use the Software on a single computer; 2. Copy the software into any machine readable form for backup or archival purposes in support of your use of the Software on the single computer; 3. Transfer the software and license agreement to another party if the other party agrees to accept the terms and conditions of the Agreement. If you transfer the Software, you must at the same time transfer all copies of the same and accompanying documentation, or destroy any copies not transferred; 4. Use the Software on a multiuser or network system only if either, the Software is expressly licensed for use on a multiuser or network system or one license is purchased for each node and terminal on which the Software will be used.

You Will Not: 1. Sublicense the Software; 2. Reverse engineer, decompile, or disassemble the Software; 3. Copy or Transfer the Software in Whole or in Part, Except as Expressly Provided for in this Agreement.

If Your Transfer Possession of the Software or Any Copy in Whole or in Part to Another Party, Except as Permitted Herein, Your License is Automatically Terminated.

Ownership and Copyright of Software: Title to the Software and all copies thereof remains with the company identified on the diskettes or in the Software. The Software and documentation is copyrighted and is protected by the United States copyright laws and international treaty provisions. You will not remove the copyright notice from the Software. You will reproduce the copyright notice on any copy or portion of the software. You agree to prevent any unauthorized copying of the Software and documentation.

Warranty: Digital Equipment Corporation warrants that the media on which the Software is furnished will be free from defects in material and workmanship under normal use for a period of ninety (90) days from the date of the purchase. Digital Equipment Corporation's entire liability and your exclusive remedy shall be the replacement of the media on which the Software is furnished if it proves to be defective. This warranty is void if the media defect has resulted from accident, abuse, or misapplication. Any replacement of media will be warranted for the remainder of the original warranty period or thirty (30) days, whichever is longer.

Disclaimer: Except as provided above, the Software is provided "As Is" without warranty of any kind.

Limitation of Liability: The above warranties are the only warranties of any kind either expressed or implied including warranties of merchantability or fitness for any particular purpose. Neither MicroSoft, Digital, nor its vendors shall be liable for any loss of profits, loss of time, interruption of business, or for indirect, special incidental or consequential damages of any kind whether under this agreement or otherwise, even if Digital has been advised of the possibility of such damages, or for any claim by any other party. Some states do not allow the limitations or exclusion of liability for incidental or consequential damages so the above limitations or exclusions may not apply to you.

Translation of this License: Digital Equipment Corporation may terminate this license at any time if you are in breach of any of its terms and conditions. Upon termination, you will immediately destroy the Software or return all copies of the Software and documentation to Digital Equipment Corporation along with any copies you have made.

U.S. Government Restricted Rights: The Software and documentation are provided with "Restricted Rights." Use, duplication, or disclosure by the Government is subject to restrictions as set forth in subparagraph (c) (1) (ii) of The Rights in Technical Data and Computer Software clause DFARS 252.277-7013 or subparagraphs (c) (1) and (2) of the Commercial Computer Software - Restricted Rights at 48 CFR 52.227-19, as applicable. Contractor/manufacturer is Digital Equipment Corporation.

Applicable Law: This Agreement is governed by the laws of the state of Massachusetts and the United States, including patent and copyright laws.

End User Software License Agreement

You Acknowledge that You Have Read This Agreement, Understand It and Agree to be Bound by its Terms and Conditions.

digital™

Index

N

O

P

Q

R

S

T

U