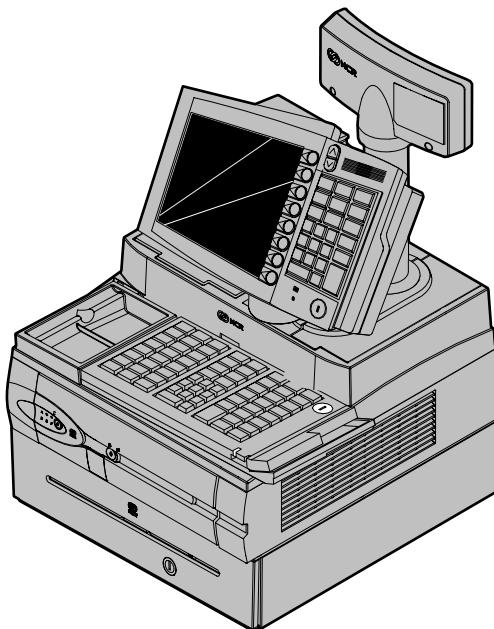


NCR RealPOS 80xRT (7459)
POS Workstation

Release 1.3

User Guide



B005-0000-1759
Issue E

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Preface

Audience

This book is written for hardware installer/service personnel, system integrators, and field engineers.

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Safety Requirements

The NCR *RealPOS 80XRT* conforms to all applicable legal requirements. To view the compliance statements see the *NCR RealPOS Terminals Safety and Regulatory Statements* (B005-0000-1589).

The on/off switch is a logic switch only. The AC line voltage primaries are live at all times when the power cord is connected. Therefore, disconnect the AC power cord before opening the unit to install features or service this terminal.

References

- *NCR RealPOS 80c Hardware Service* (B005-0000-1537)
- *NCR RealPOS 80c Site Preparation* (B005-0000-1536)
- *NCR RealPOS 80c Parts Identification Manual* (B005-0000-1538)

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Revision Record

Issue	Date	Remarks
A	Mar 2007	First issue
B	May 2007	Release 1.1
C	July 2007	Added AMT Configuration chapter
D	Nov 2007	Release 1.2
E	May 2009	Release 1.3

Chapter 1: Product Overview

Introduction

The NCR RealPOS 80*XRT* POS Workstation (also known as NCR 7459) is a powerful, retail-hardened point-of-sale terminal targeted for general merchandise, food and convenience store environments.

Featuring a next generation architecture with support for advanced Intel® vPro™ technology, the NCR RealPOS 80*XRT* delivers industry-leading power, scalability and systems management capabilities to the point-of-service. With single-core and dual-core processor options, high-speed Gigabit Ethernet, SATA hard drives, and support for up to 8GB of DDR2 memory, the NCR RealPOS 80*XRT* is designed to grow with your business and protect your systems investment. In addition, utilizing Intel® Active Management Technology (AMT), the NCR RealPOS 80*XRT* includes built-in manageability to increase uptime and help drive down your total cost of ownership.

The system offers superior connectivity for retail, with support for legacy peripheral interfaces (RS-232, PS/2, Parallel, and VGA), as well as emerging interface standards such as Powered USB and a DVI video interface.

PCI and PCI Express expansion slots allow you to deploy new capabilities such as the latest wireless technology. The NCR RealPOS 80*XRT* also supports a variety of storage options including dual SATA hard drives with onboard RAID (Redundant Array of Independent Disks), delivering excellent performance and data redundancy.

The cabinet configurations are optimized to save valuable space at the Checkstand while providing expandability for future needs.

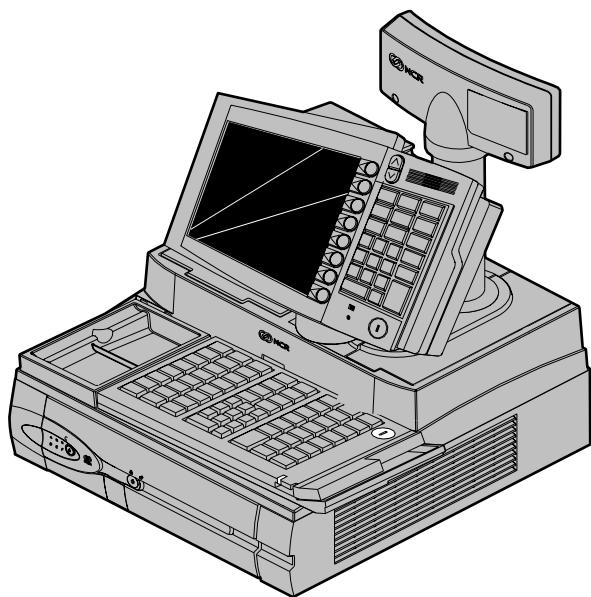
The RealPOS 80XRT supports a broad range of industry standard operating system environments including Windows XP Professional, Windows XPe, Windows Embedded for Point of Service (WePOS), and SuSE Linux Enterprise for Point-of-Service (SLEPOS)

Release 1.0 Models

Major Model	Description
7459-5100	RealPOS 80XRT with 3.2 GHz Intel Celeron D 352, 512 MB 533MHz DDR2 memory, 80 GB SATA HDD, Beige
7459-5110	RealPOS 80XRT with 3.2 GHz Intel Celeron D 352, 512 MB 533MHz DDR2 memory, 80 GB SATA HDD, Beige, UPS-ready Power Supply
7459-5300	RealPOS 80XRT with 3.4 GHz Intel Pentium 4 651, 512 MB 533MHz DDR2 memory, 80 GB SATA HDD, Beige
7459-5500	RealPOS 80XRT with 2.14 GHz Intel Core2 Duo E6400 CPU, 1GB 533 MHz DDR2 memory, 80 GB SATA HDD, Beige

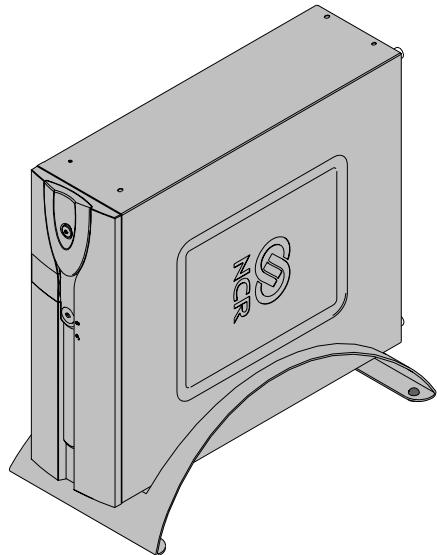
New for Release 1.1

- 7459-5110 UPS-ready model and optional internal UPS battery feature or kit upgrade.
- Integrated Model
 - 7459-K300 and 7459-K301 peripheral integration tray kits in beige or charcoal gray.
 - 7459-K315 and 7459-K316 integrated 719x printer adapter kits for mounting a 7197 or 7198 printer on either beige or charcoal gray peripheral integration tray kit.
 - 7459-K320 beige tray keyboard insert for configuring an NCR 64-key POS Keyboard on the beige peripheral integration kit.



24638

- 7459-K320 Vertical Mount for proper vertical (side) installation of a modular RealPOS 80XRT terminal.



24700

New for Release 1.2

- New Processors
- Faster Memory
- New Storage Options

New Models

Major Model	Description
7459-5200	RealPOS 80 <i>xRT</i> with 2.0 GHz Intel Celeron D 440, 512 MB 667MHz DDR2 memory, 80 GB SATA HDD, Beige
7459-5205	RealPOS 80 <i>xRT</i> with 2.0 GHz Intel Celeron D 440, 512 MB 667MHz DDR2 memory, 80 GB SATA HDD, Charcoal
7459-5210	RealPOS 80 <i>xRT</i> with 3.2 GHz Intel Celeron D 440, 512 MB 667MHz DDR2 memory, 80 GB SATA HDD, Beige, UPS-ready Power Supply
7459-5220	RealPOS 80 <i>xRT</i> with 3.2 GHz Intel Celeron D 440, 1 GB 667MHz DDR2 memory, No HDD, Beige, UPS-ready Power Supply
7459-5400	RealPOS 80 <i>xRT</i> with 1.8 GHz Intel Pentium Dual core E2160, 512 MB 667MHz DDR2 memory, 80 GB SATA HDD, Beige
7459-5405	RealPOS 80 <i>xRT</i> with 1.8 GHz Intel Pentium Dual core E2160, 512 MB 667MHz DDR2 memory, 80 GB SATA HDD, Charcoal
7459-5501	RealPOS 80 <i>xRT</i> with 2.14 GHz Intel Core2 Duo E6400 CPU, 1GB 667 MHz DDR2 memory, 250 GB SATA HDD, Beige

New for Release 1.3

- New Processors
- 2GB DDR2 667MHz Memory
- New 80Plus Non-UPS Power Supply
- Motherboard Revision to support Core2Quad E7400 CPU
- Native SATA CD DVD-ROM
- Trusted Platform Module (TPM) Capability

New Models

Major Model	Description
7459-5202	RealPOS 80xRT with 2.0 GHz Intel Celeron D 440, 512 MB 667MHz DDR2 memory, 80 GB SATA HDD, Beige
7459-5207	RealPOS 80xRT with 2.0 GHz Intel Celeron D 440, 512 MB 667MHz DDR2 memory, 80 GB SATA HDD, Charcoal
7459-5212	RealPOS 80xRT with 3.2 GHz Intel Celeron D 440, 512 MB 667MHz DDR2 memory, 80 GB SATA HDD, Beige, UPS-ready Power Supply
7459-5222	RealPOS 80xRT with 3.2 GHz Intel Celeron D 440, 1 GB 667MHz DDR2 memory, No HDD, Beige, UPS-ready Power Supply
7459-5402	RealPOS 80xRT with 1.8 GHz Intel Pentium Dual core E2160, 512 MB 667MHz DDR2 memory, 80 GB SATA HDD, Beige
7459-5407	RealPOS 80xRT with 1.8 GHz Intel Pentium Dual core E2160, 512 MB 667MHz DDR2 memory, 80 GB SATA HDD, Charcoal
7459-5602	RealPOS 80xRT with 2.14 GHz Intel Core2 Duo E7400 CPU, 1GB 667 MHz DDR2 memory, 250 GB SATA HDD, Beige
7459-5702	RealPOS 80xRT with 2.14 GHz Intel Core2 Quad Q9400 CPU, 2GB 667 MHz DDR2 memory, 250 GB SATA HDD, Beige

Technical Specifications

Processor	
CPU	<ul style="list-style-type: none"> Intel Core2 Quad Q9400, 1333 MHz FSB Intel Core2 Duo E7400, 1066 MHz FSB Intel Core2 Duo E6400, 1066 MHz FSB Intel Pentium 4 651, 3.4 GHz, 800 MHz FSB Intel Pentium Dual Core 2160, 1.8 GHz, 800 MHz FSB Intel Celeron D 352, 3.2 GHz, 533 MHz FSB Intel Celeron D 440, 2.0 GHz, 800 MHz FSB
Motherboard	
Form Factor	<ul style="list-style-type: none"> Intel EmbeddedATX Plus
Chipset	<ul style="list-style-type: none"> Intel Q965 Express
Hard Disk Interface	<ul style="list-style-type: none"> Serial ATA, 3 Gb/s
Graphics	<ul style="list-style-type: none"> Intel Graphics Media Accelerator 3000
Memory	
Memory Type	<ul style="list-style-type: none"> Dual Channel DDR2 (533/667 MHz)
Number of Sockets	<ul style="list-style-type: none"> 4 DIMM sockets
System Memory	<ul style="list-style-type: none"> 512MB standard, up to 8 GB
Video Memory	<ul style="list-style-type: none"> Up to 256MB, shared
Storage Media	
Hard Disk Drive	<ul style="list-style-type: none"> 80/250 GB SATA, 7200 rpm Onboard RAID, with second hard drive option Quick Swap SATA Dock with secure, tool-free front access to both hard disk drives
Integrated CD/DVD	<ul style="list-style-type: none"> Optional SATA 24x CD-RW/ 8x DVD-ROM
Solid State Media	<ul style="list-style-type: none"> 2.5" 8 GB SATA Solid State Drive (SSD)
Expansion	
PCI Slots	<ul style="list-style-type: none"> 1 PCI slot, full-height 1 PCI-Express x1 slot, full-height

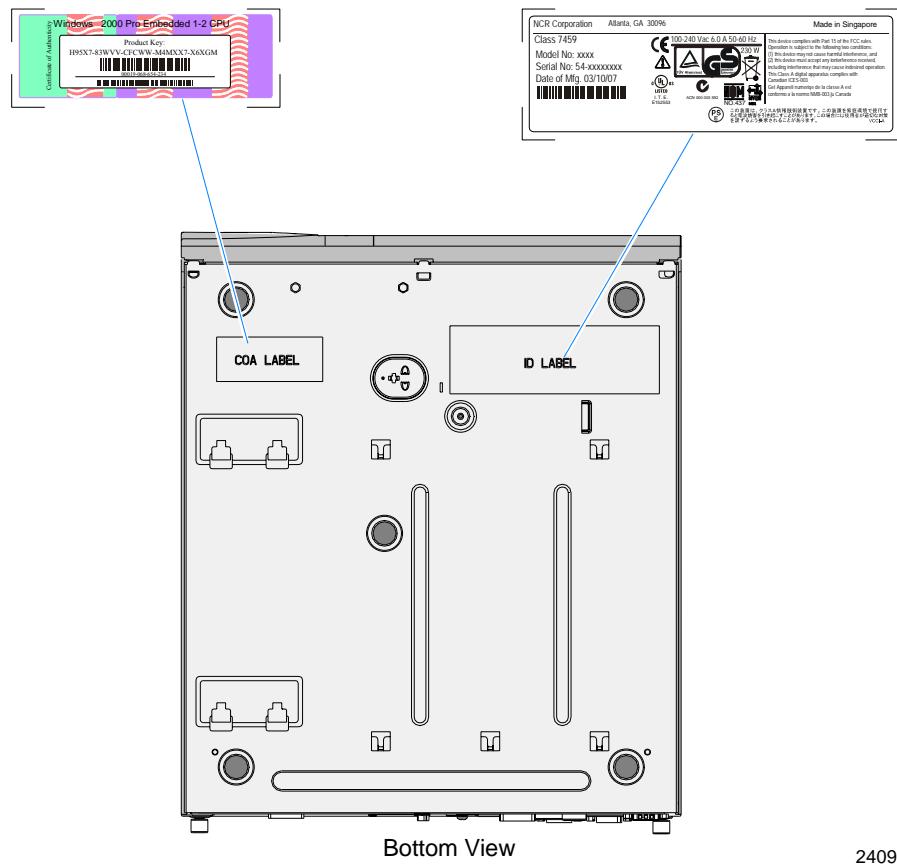
Connectivity	
USB Total	<ul style="list-style-type: none"> • 8, expandable to 10
PC USB (5V)	<ul style="list-style-type: none"> • 2
Powered USB (12V)	<ul style="list-style-type: none"> • 5, expandable to 7
Powered USB (24V Printer)	<ul style="list-style-type: none"> • 1
RS-232	<ul style="list-style-type: none"> • 2, expandable to 4 (powered 0/5/12V) • Additional 2-4 ports via PCI expansion card
Parallel	<ul style="list-style-type: none"> • 1
PS/2 Keyboard	<ul style="list-style-type: none"> • 1
PS/2 Mouse	<ul style="list-style-type: none"> • 1
Cash Drawer	<ul style="list-style-type: none"> • 1
LAN	<ul style="list-style-type: none"> • 10/100/1000 Mb (Gigabit) Ethernet
Audio Port In/Out	<ul style="list-style-type: none"> • Amplified speaker port • Line Out • Microphone • Front headphone jack
Video Interfaces	<ul style="list-style-type: none"> • Onboard VGA and DVI • Standard dual independent display support
Power Management	
Power Supply	<ul style="list-style-type: none"> • High-capacity PowerPlus internal power supply
Internal UPS	<ul style="list-style-type: none"> • Optional integrated UPS battery option (selected models)
ACPI	<ul style="list-style-type: none"> • ACPI 3.0 • Wake Up events include: Power switch, PS/2 Keyboard and Mouse, USB keyboard and Mouse, Wake on LAN, and RTC Alarm
Systems Management	
PXE	<ul style="list-style-type: none"> • Yes
Wake on LAN	<ul style="list-style-type: none"> • Yes
Intel Active Management Technology (AMT)	<ul style="list-style-type: none"> • Yes
NCR Retail Systems Manager (RSM)	<ul style="list-style-type: none"> • Yes
Compliant Standards	
Compliant Standards	<ul style="list-style-type: none"> • RoHS, WEEE

Peripherals	
Printers	<ul style="list-style-type: none"> • NCR RealPOS 7167 Multi-Function Printer • NCR RealPOS 7168 Two-Sided Multi-Function Printer • NCR RealPOS 7197 Thermal Receipt Printer • NCR RealPOS 7198 Two-Sided Thermal Receipt Printer
Displays	<ul style="list-style-type: none"> • NCR RealPOS 5954 15" DynaKey • NCR RealPOS 5964 12.1" and 15" LCD Touchscreen • NCR RealPOS 5942 12.1" and 15" LCD Display • NCR RealPOS 5982 6.5" LCD Display • NCR RealPOS 5972 2x20 LCD Display • NCR RealPOS 5975 2x20 and Graphical VFD Display
Retail Keyboards	<ul style="list-style-type: none"> • NCR RealPOS 5932 64-Key POS Keyboard • NCR RealPOS 5932 POS/Alphanumeric Keyboard • NCR RealPOS 5932 78-Key POS Keyboard • NCR RealPOS 5932 Compact POS/Alphanumeric Keyboard
Cash Drawers	<ul style="list-style-type: none"> • NCR RealPOS 2182 Compact Cash Drawer • NCR RealPOS 2186 Mid-Range Cash Drawer • NCR RealPOS 2181 Full-Size Cash Drawer
Scanners	<ul style="list-style-type: none"> • NCR RealScan 72 Bi-Optic Scanner/Scale • NCR RealScan 76 Bi-Optic Scanner/Scale • NCR RealScan 83 Convertible Scanner • NCR RealScan 92 Bi-Modal Presentation Scanner • Linear Imaging Hand Held Scanner • Area Imaging Hand Held Scanner
Payment Devices	<ul style="list-style-type: none"> • NCR 5945 Electronic Payment Terminal • NCR 5992 Signature Capture Plus • NCR 5993 Advanced Payment Terminal

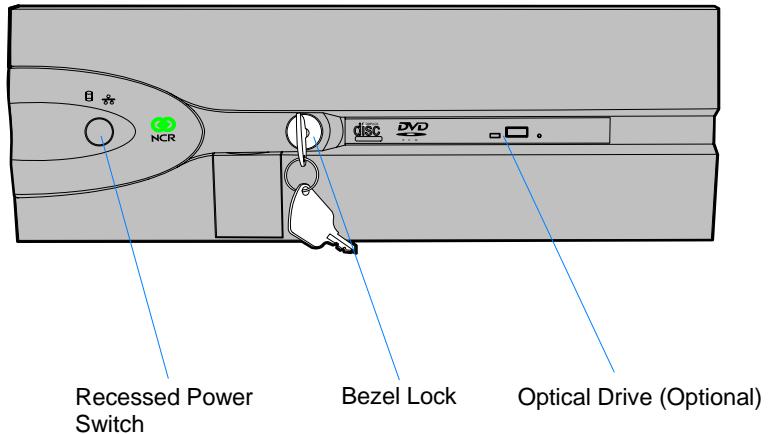
Serial Number/Model Number Label

The serial number and model number are included on a label, which is located on the bottom of the unit. If the terminal was shipped with an Operating System pre-installed there is also a Certificate of Authenticity label.

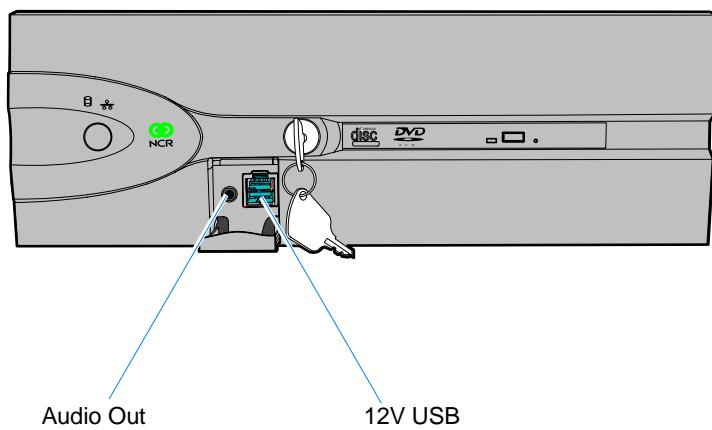
Note: The serial number is repeated on the rear panel under the PCI expansion slots and on the inside of the Access Door.



Front Accessible Features



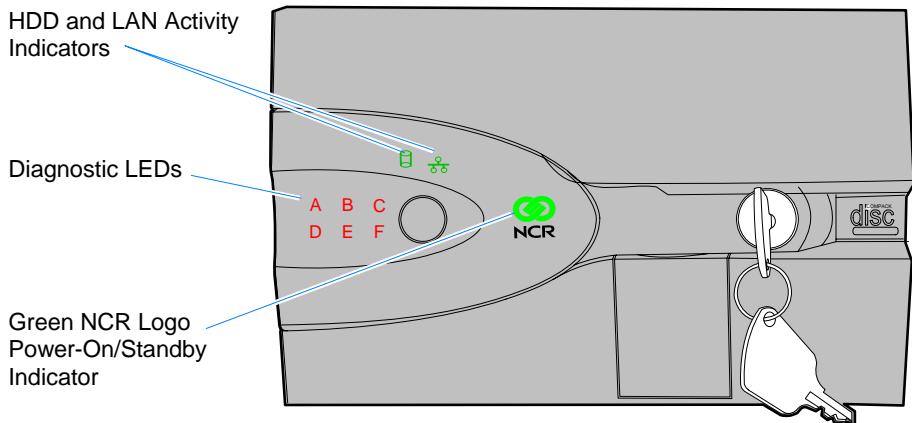
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Front LED Indicators

The Front Panel of the 7459 includes the system power switch and a series of Diagnostic and Status LEDs.



23938a

The LEDs which are visible through the front panel are:

- System Power LED - This LED is used to illuminate the NCR Logo on the bezel to indicate that the system is on. In addition, this LED blinks when the system is in S3 suspend mode.
- LAN Link - This LED lights to indicate that the system is attached to a LAN. It stays on whenever the LAN is present, even if the unit is powered off. This LED also flashes to indicate LAN activity.
- HDD Activity – This LED lights whenever there is activity to the hard drives.

- Diagnostic LEDs (A-F) – These six Red LEDs are used to indicate various failure modes of the system, primarily when the system fails to boot. These LEDS are hidden behind the Front Bezel, making them visible only when they are lit.
- Power On Self Test (POST) Error (A-C): These three LEDS Flash during boot-up. If boot fails, different combinations of LEDs indicate the point where POST failed to aid in troubleshooting.

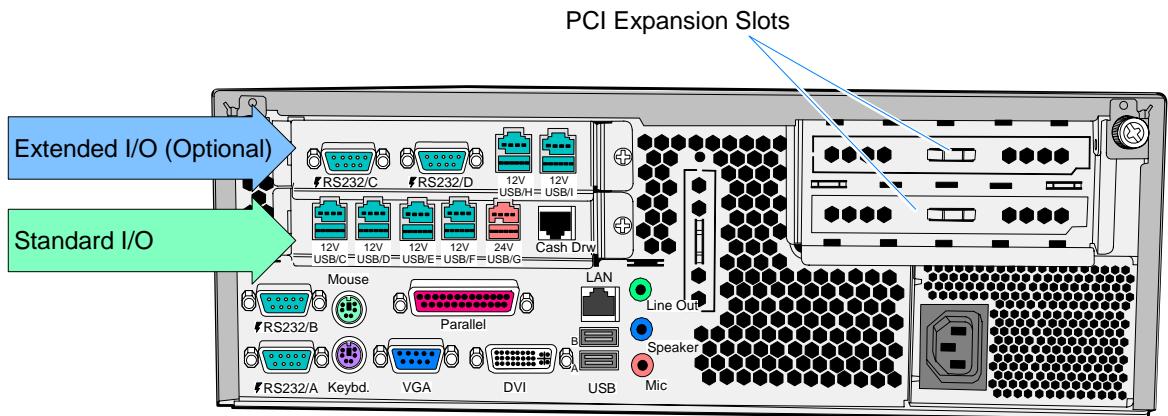
BIOS Checkpoint	Description	A	B	C
	Normal Operating condition after proper boot	OFF	OFF	OFF
D1	Keyboard Controller BAT test. Check if waking from power management suspend state. Save power on CPUID value in scratch CMOS.	OFF	OFF	ON
D4	Test Base 512kb memory. Adjust policies and cache first 8MB. Set stack. (Indicates Bad DIMM)	OFF	ON	OFF
04	Verify CMOS and update if necessary. Initialize data variables. Also indicates that SATA device is not initializing. (Indicates SATA Failure)	OFF	ON	ON
0A	Initialize keyboard controller	ON	OFF	OFF
0B	Detect presence of PS/2 mouse	ON	OFF	ON
0C	Detect presence of Keyboard in KBC port	ON	ON	OFF
	Indicates that there is no memory detected in system.	ON	ON	ON

- Temperature Warning (D): Lights when temperature threshold is exceeded and CPU is throttling to prevent overheating. System performance may be affected during throttling.
- CPU Voltage Bad (E): Lights if CPU is not receiving adequate power to boot the system (Check power supply and internal connection). Also indicates that ATX 12V power connector is not installed. A, D, E, and F LEDs illuminate in this case.
- Power Supply Bad (F): Lit when power supply is not providing proper voltage to internal connections, including powered serial ports. Isolates failure to internal power supply. A, D, E, and F LEDs illuminate in this case.

Connectivity and Expansion

FlexPort I/O Modular Design

- Standard I/O
 - 12V USB (4)
 - 24V USB (1)
- Extended I/O
 - 12V USB (2)
 - 12V RS-232 (2)
- Dual Display
 - DVI and VGA Interfaces
 - Slot for Additional Video
- Expansion Slots
 - PCI and PCI Express



Enhanced Manageability (Intel® AMT)

The NCR RealPOS 80XRT features Intel® Active Management Technology (Intel® AMT), bringing new value to the POS workstation with remote management techniques that have previously only existed on servers.

Intel AMT is a hardware-assisted technology that enables remote management of distributed systems regardless of system state.

With out-of-band management capabilities, Intel AMT allows remote problem diagnosis, updates and repairs, even when the operating system is not functioning or the workstation is turned off.

Quiet System Technology

The 7459 utilizes Intel QST (Quiet System Technology), which reduces fan noise. It is normal for the fan be at full speed at system start up and then to slow down.

Power Management

Power management is implemented on the 7459 terminal using the Advanced Configuration and Power Interface Specification 1.1 Specification 1.1. A key feature of ACPI is that the operating system, not the BIOS, configures and implements power management.

Definitions of the States Involved

The 7459 supports the system power states as defined by ACPI:

G3 Mechanical Off: A computer state that is entered and left by a mechanical means (for example, turning off the system's power through the movement of a large red switch). Various government agencies and countries require this operating mode. It is implied by the entry of this off state through a mechanical means that no electrical current is running through the circuitry and that it can be worked on without damaging the hardware or endangering service personnel. The OS must be restarted to return to the Working state. No hardware context is retained. Except for the real-time clock, power consumption is zero.

G2/S5 Soft Off: A computer state where the computer consumes a minimal amount of power. No user mode or system mode code is run. This state requires a large latency in order to return to the Working state. The system's context will not be preserved by the hardware. The system must be restarted to return to the Working state. It is not safe to disassemble the machine in this state.

G1 Sleeping: A computer state where the computer consumes a small amount of power, user mode threads are not being executed, and the system "appears" to be off (from an end user's perspective, the display is off, and so on). Latency for returning to the Working state varies on the wake environment selected prior to entry of this state (for example, whether the system should answer phone calls).

Work can be resumed without rebooting the OS because large elements of system context are saved by the hardware and the rest by system software. It is not safe to disassemble the machine in this state.

G0 Working: A computer state where the system dispatches user mode (application) threads and they execute. In this state, peripheral devices (peripherals) are having their power state changed dynamically. The user can select, through some UI, various performance/power characteristics of the system to have the software optimize for performance or battery life. The system responds to external events in real time. It is not safe to disassemble the machine in this state.

ACPI Sleep States (S0 – S5)

Under the G1 sleeping state ACPI defines levels of system sleep state support. The 7459-5xxx terminals support the following sleeping states:

S0: Normal Powered-On state

S1 (Standby): The S1 sleeping state is a low wake latency sleeping state. In this state, no system context is lost (CPU or chip set) and hardware maintains all system context.

S2: 7459 terminals do not support the S2 sleeping state.

S3 (Suspend to Ram): The S2 sleeping state is a low wake latency sleeping state. This state is similar to the S1 sleeping state except that the CPU and system cache context is lost (the OS is responsible for maintaining the caches and CPU context). Control starts from the processor's reset vector after the wake event. In NCR systems, during this state power is not provided to USB devices.

Requirements for S3 support:

- O/S must be built on a system with S3 enabled in the BIOS
- Some peripherals may not be S3 capable, which can prevent the system from entering S3 state.
- S3 Standby state is not compatible with UPS support.

S4 (Suspend to Disk): The S4 state is the lowest power, longest wake latency sleeping state supported by ACPI. In order to reduce power to a minimum, it is assumed that the hardware platform has powered off all devices. Platform context is maintained.

S5 (Soft Off): A computer state where the computer consumes a minimal amount of power. No user mode or system mode code is run. This state requires a large latency in order to return to the Working state. The system's context will not be preserved by the hardware. The system must be restarted to return to the Working state. It is not safe to disassemble the machine in this state.

Peripherals: ACPI defines power states for peripherals which are separate from the system power state. The device power states range from D0 (fully-on) to D3 (off). It is the responsibility of the driver developer for each peripheral to define and support the available power states.

ACPI States for Windows

Power State	S0	S1	S2	S3	S4	S5
Supported: Y/N	Y	Y	N	Y	Y	Y
Description	Full On	Standby: Video off / HDD off	N/A	Off: memory in slow refresh	Off: memory image written to HDD	Off
Power Consumption *	85W	39W	N/A	6W	6W	6W
Power Supply **	On	On	N/A	Powered Down **	Powered Down **	Powered Down **
Wake Options:						
Power Switch	N/A	Y	N/A	Y	Y	Y
PS/2 Keyboard	N/A	Y	N/A	Y	N	N
PS/2 Mouse	N/A	Y	N/A	N	N	N
USB Keyboard	N/A	Y	N/A	N	N	N
USB Mouse	N/A	Y	N/A	N	N	N
LAN (magic packet) (WOL) Note: BIOS and OS must be configured. See below.	N/A	Y	N/A	Y	Y	Y
Ring Indicator	N/A		N/A	N	N	N
Operating Systems						
Windows 2000	N/A	Y	N/A	Y	Y	Y
Windows XP Embedded	N/A	Y	N/A	Y	Y	Y
Windows XP Professional	N/A	Y	N/A	Y	Y	Y
WePOS	N/A	Y	N/A	Y	Y	Y

* **Power consumption** based on the following configuration with no peripherals attached:
(P4 2.4GHZ 533FSB, one 512MB DIMM, one HDD)

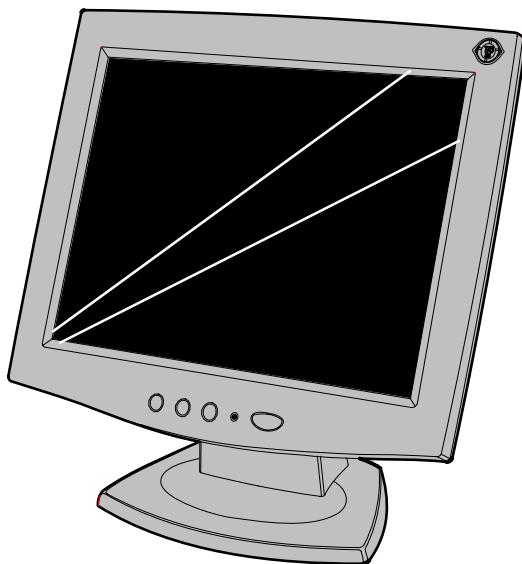
** **Powered down mode:** Power supply fan is off. Only +5VSB is provided to the motherboard.

WOL Note: Wake On LAN BIOS Setting: [Chipset Menu](#) → [Southbridge Configuration](#) → [GbE Controller](#) → [GbE Wake Up From S5](#). Set to *Enabled*.

ACPI States for SuSE Linux

Operator Displays

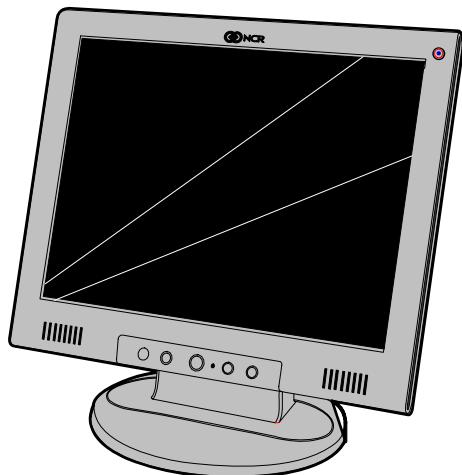
5942 12.1-Inch Color LCD



19809

The 5942 12.1-Inch LCD is designed for customers who desire a color display and prefer the small footprint and ergonomic packaging of LCD technology versus traditional CRT's. Depending on the customer's requirements, this LCD display can be used either as an operator display or a customer information display (CID). The 5942 Display features a 12.1-Inch Active Matrix Color LCD with support for SVGA and XGA resolution.

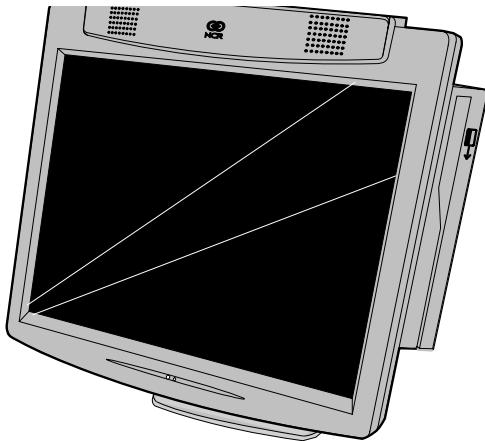
5942 15-Inch Color LCD



21492

The 5942 15-Inch LCD features a high brightness dual-backlight active matrix LCD with analog interface which plugs directly into the standard VGA (CRT) port on the RealPOS 80xRT terminal. It includes a 1.5 meter VGA cable and built-in power supply with standard IEC AC power connector. The mount and power cable must be ordered separately.

5964 15-Inch Touch Screen



22041

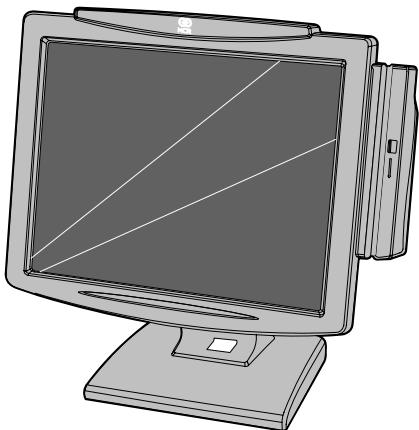
The NCR 5964-7xxx is a 15-inch XGA (1024x768) Liquid Crystal Display with either a resistive or capacitive Touch Screen for operator input. It is available in two color schemes:

- Beige (G11)
- Charcoal (CG1)

Features

- 15' LCD XGA (1024x768) native resolution, 350 nit typical brightness (also supports VGA, SVGA, SXGA)
- Dual Bulb, adjustable brightness
- Capacitive or 5-wire resistive touch options, USB interface.
- Video - VGA, standard 15 pin female.
- Integrated stereo speakers-volume controlled via the OSD.
- One standard USB port in addition to the powered USB port.
- Optional MSR- field installable, USB interface.
- ACPI and VESA DPM compliance
- Choice of integrated or remote mounts

5966 15-Inch Touch Screen



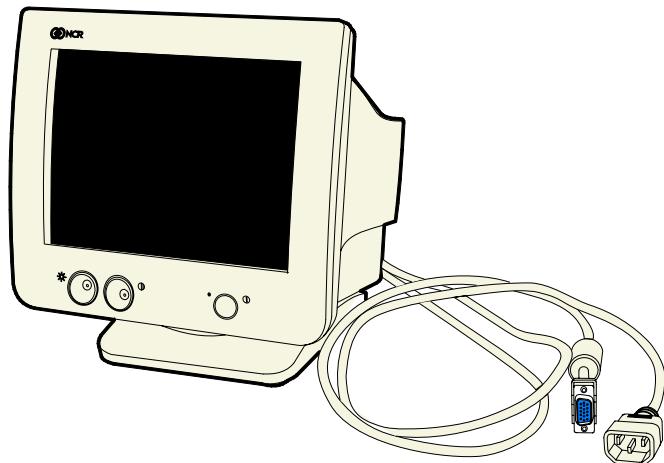
24810

The NCR 5966 is a 15-inch low cost XGA (1024x768) Liquid Crystal Display with a 5-wire resistive touch screen for operator input. It is available in Beige (G11) and Charcoal (CG1).

Features

- 15' LCD XGA (1024x768) Native Resolution, 160 nit Brightness
- Dual Bulb TFT LCD (also supports VGA, SVGA Resolutions)
- 5-Wire Resistive Touch, USB Interface
- Video - VGA, Standard 15-Pin Female
- Integrated Stereo Speakers
- Power Supplied via AC Line Input or 12 DC Power Brick
- VGA, Touch, Speaker and Power Cables
- Remote Table Top Mount
- Optional MSR- Field Installable, USB Interface
- VESA standard 75mm mounting pattern on the back of the enclosure
- Uses NCR's industry standard OPOS and JavaPOS drivers, supporting most applications and standard NCR supported retail Windows and Linux operating systems.

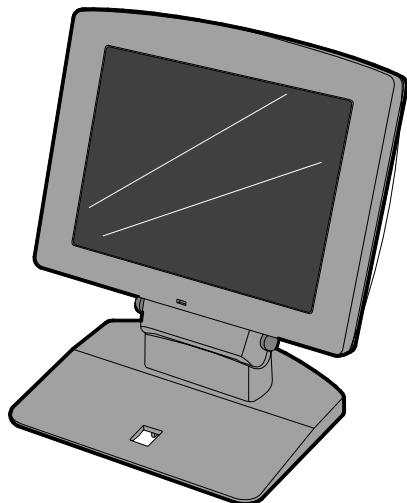
5960-1001 9-Inch Monochrome CRT



21903

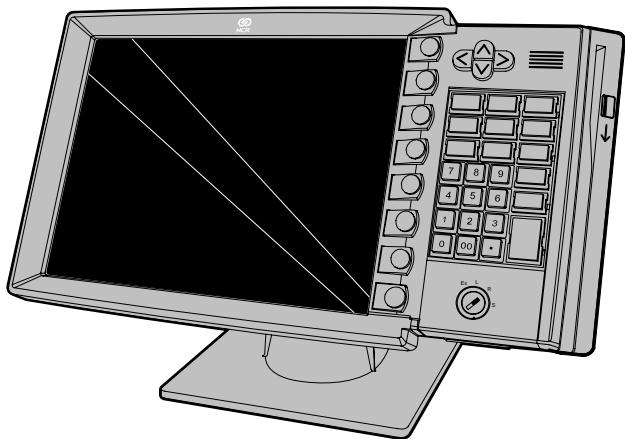
NCR 5982 6.5-Inch LCD Display

The 5982 LCD Display is a terminal-powered monochrome 6.5-Inch VGA LCD.



23157

NCR 5954 15-Inch DynaKey



23815

The NCR RealPOS 5954 USB DynaKey™ is a Point-of-Sale (POS) keypad with a built-in 15-inch flat panel Liquid Crystal Display (LCD). Unique to the DynaKey is a set of *ATM-style* keys (*DynaKeys*), which are located beside the display. The functions of these keys change depending on the software application appearing on the LCD.

Note: USB DynaKey requires Windows XP/XPe.

The combined display and keypad is designed to reduce operator training time, simplify complex POS transactions and improve associate/cashier productivity. Combined with the appropriate applications software, the DynaKey can virtually eliminate the need for an operator to memorize function key locations and sequence.

The USB DynaKey interfaces with the host terminal via two cables.

- Digital Video Interface (DVI) cable for video
- Powered Universal Serial Bus (USB) for data and power

The DynaKey is available in two color schemes.

- Light Gray (G11)
- Charcoal Gray (CG1)

Keyboards

The NCR 5932 Keyboards are intended for harsh retail environments and contain an internal membrane to protect against objects such as paper clips, staple wires, pins, and so forth, from falling between the keys and damaging the electronics. This technology improves overall reliability not typically found in standard PC keyboards or many retail keyboards.

There are four models of the NCR 5932 Keyboard:

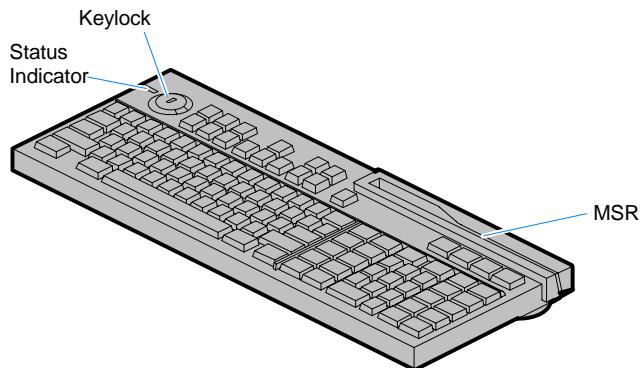
- NCR 5932-1xxx PS/2 Alphanumeric Big Ticket POS Keyboard
- NCR 5932-2xxx 64-Key PS/2 POS Keyboard
- NCR 5932-5xxx USB Alphanumeric Big Ticket Keyboard
- NCR 5932-6xxx 104-Key Programmable POS Keyboard
- NCR 5932-7xxx 78-Key Programmable POS Keyboard

Keyboard Power

The RealPOS 80xRT supplies power to the PS/2 keyboard even when in the OFF state. This is for configurations that require the terminal to turn on when a key is pressed. Most NCR PS/2 keyboards have a Power ON LED which stays illuminated, indicating power is present in the keyboard. Pressing a key may also cause tones to be sounded, but unless the terminal is configured to power up when a key is press, nothing happens.

NCR 5932-1xxx PS/2 Alphanumeric Big Ticket POS Keyboard

This *NCR PS/2 Alphanumeric Big Ticket POS Keyboard* contains a full alphanumeric keyboard, a POS numeric keypad, and POS Function keys. The function keys permit customer specific key assignments. It also includes a 68-Inch keyboard cable.



19745a

Features

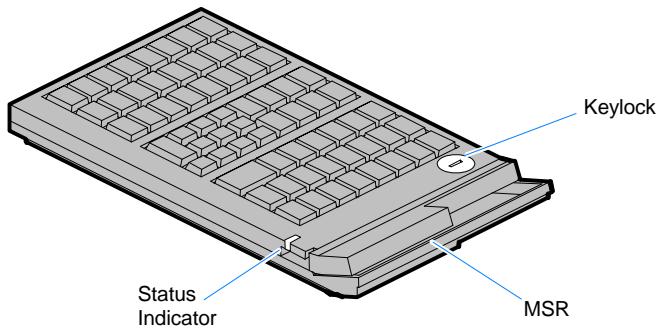
- 3-Track ISO Magnetic Stripe Reader (MSR)
- 68-Inch PS/2 Keyboard Cable
- International English Character Set

Wedge support for the following:

- Keylock
- Speaker
- Scanner
- MSR

NCR 5932-2xxx 64-Key PS/2 POS Keyboard

The NCR 64-Key POS Keyboard, designed for checkout environments where alpha entry is not required, includes 55 assignable function keys and a numeric keypad with 11 keys.



19746

Features

- Keylock
- Speaker
- Scanner
- System Status Indicator LED
- 68-Inch PS/2Keyboard Cable

Note: Configure a NCR 5932-2xxx if you need an MSR feature.

The Wedge controller handles the operations of the user-programmable speaker, Magnetic Stripe Reader (MSR), keylock, and scanner connector. Please refer to the *Wedge Software User's Guide* (BD20-1368-A) for detailed information about interfacing and configuring these devices.

Keylock

The Big Ticket and 64-key keyboards have a four-position keylock switch. The table following explains the keylock positions.

Abbreviation	Position	Description
Ex	Exception	Used by the customer or service representative to perform low-level programming such as terminal diagnostics, configuring the terminal, or loading the terminal.
L	Locked	Used to lock keyboard input to prohibit use of normal functions.
R	Register	Used when performing normal retail mode functions.
S	Supervisor	Used by supervisor to provide highest level of terminal control in cases such as refunds and running totals.

Speaker

A programmable speaker generates key clicks and error tones.

Buzzer

The buzzer is an internal on board Buzzer.

System Status Indicator LED

The system status indicator is a two-color LED. The green color indicates the keyboard has power. Red indicates an error condition. When the system is off, the LED does not light up.

When the 64-key keyboard is in the special *PC setup* mode, the LED flashes red/green.

The status and condition indicated by the LED are as follows:

Status	Condition
Green	Power on
Red	Wedge controller reporting an error condition
Flashing red/green	Keypad of 64-key keyboard in <i>PC Setup</i> mode
Off	System off (see <i>Keyboard Power</i> section)

Note: For more information about the Wedge controller, refer to *Wedge Software User's Guide* (BST0-1368-B).

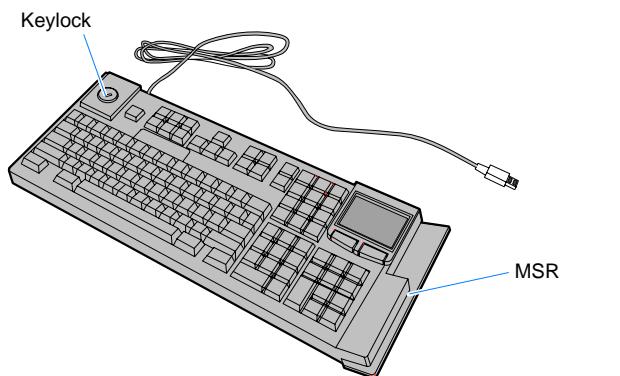
MSR (Magnetic Stripe Reader)

The MSR is an optional feature that provides support for reading magnetically coded data cards. The keyboards support two different types of MSR:

- ISO Tracks 1, 2, and 3
- JIS-II and ISO Track 2 (Big Ticket and full-featured 64-key keyboards only)

Note: MSR signals are routed to the Wedge controller and passed into the system keyboard data stream. For more information about the Wedge controller, refer to *Wedge Software User's Guide* (BD20-1368-A)

NCR 5932-5xxx USB Alphanumeric Big Ticket Keyboard



19586

The *NCR USB Alphanumeric Big Ticket Keyboard* is a multifunction keyboard that is two keyboards built into one.

The keyboard consists of two major sections:

- 38-key POS keyboard
- Industry-standard alphanumeric PC keyboard

The keyboard contains the key matrix and other POS-specific functions such as keylock, speaker, system status indicator, and magnetic stripe reader (MSR). This 5932 keyboard also has a USB port to connect a Scanner or other USB device.

Features

The NCR 5932 USB Keyboard supports the following features:

- Integrated Touch Pad, Keylock, Speaker, 3-Track Magnetic Stripe Reader (MSR)
- Keyboard Status LEDs
- USB cable
- Additional external USB ports
- No language characteristics

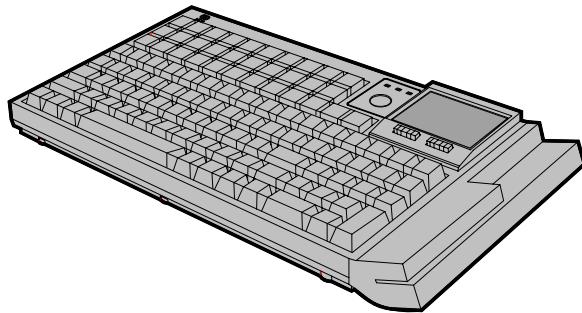
Note: Refer to *NCR 5932 USB Keyboard User's Guide* (B005-0000-1395) for further detailed information.

NCR 5932-6xxx 104-Key Programmable POS Keyboard

The NCR 5932 104-Key *Programmable POS Keyboard* is a PS/2 multifunctional keyboard that is two keyboards built into one.

The keyboard consists of two major sections:

- 32-key Point-Of-Sale Keyboard
- PC type Alphanumeric Keyboard



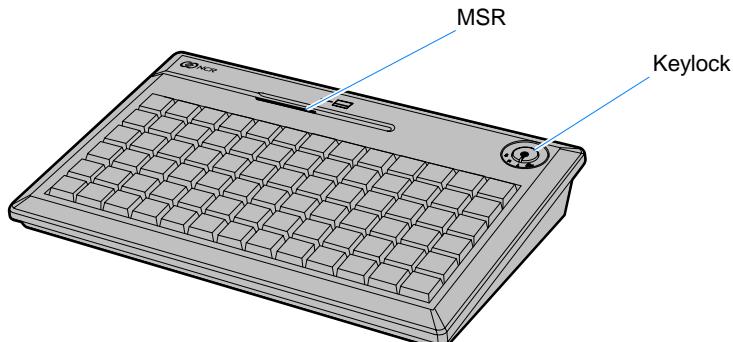
21662

The keyboard includes the following features:

- Keylock
- Tone Indicator
- Keyboard Status Indicator
- Magnetic Stripe Card Reader (MSR)
- Glide Pad

NCR 5932-7xxx PS/2 78-Key POS Keyboard

The *PS/2 78-Key POS Keyboard* is designed for checkout environments where alpha entry is not required. This keyboard is shipped with (55) re-legendable POS function keys and a numeric keypad with (11) keys. The keyboard interfaces to the RealPOS 80xRT via a PS/2 interface.



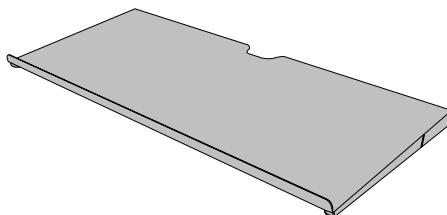
22048

The keyboard includes the following features:

- Keylock
- Tone Indicator
- Magnetic Stripe Card Reader (MSR)
- Extended Keyboard Port

7459-K317/K318 Keyboard Filler Plate

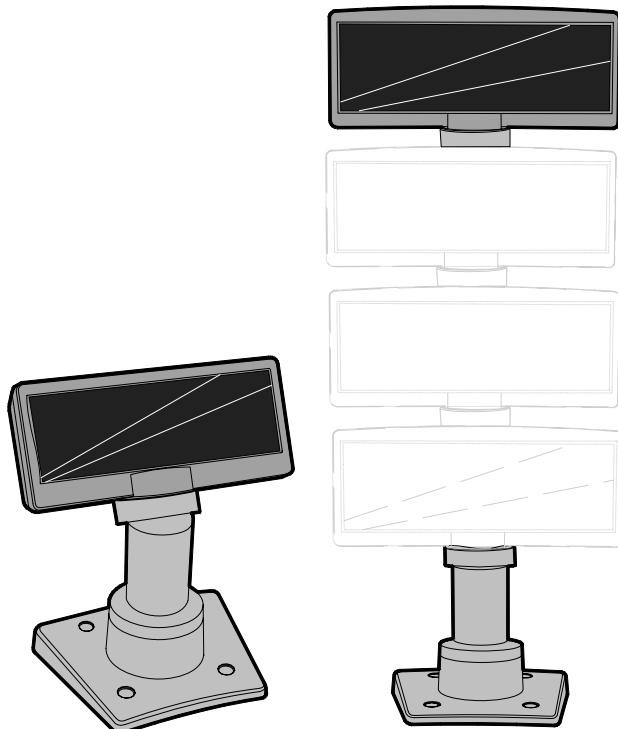
The Keyboard Filler Plate provides a platform to place a 3rd Party Keyboard in the Peripheral Integration Tray. It is available in beige (7459-K317) and charcoal (7459-K318).



25206

Customer Displays

NCR 5975 2x20 VFD Customer Display



22933

The NCR 5975 Customer Display is designed to be an optional display device for the NCR retail terminals. It can also serve as a display for any industry-standard PC. It is a Vacuum Fluorescent Display (VFD).

- 5975-1000 2x20 VFD (G11)
- 5975-1001 2X20 VFD (CG1)

There are four post options, available in 4 inch increments.

Features

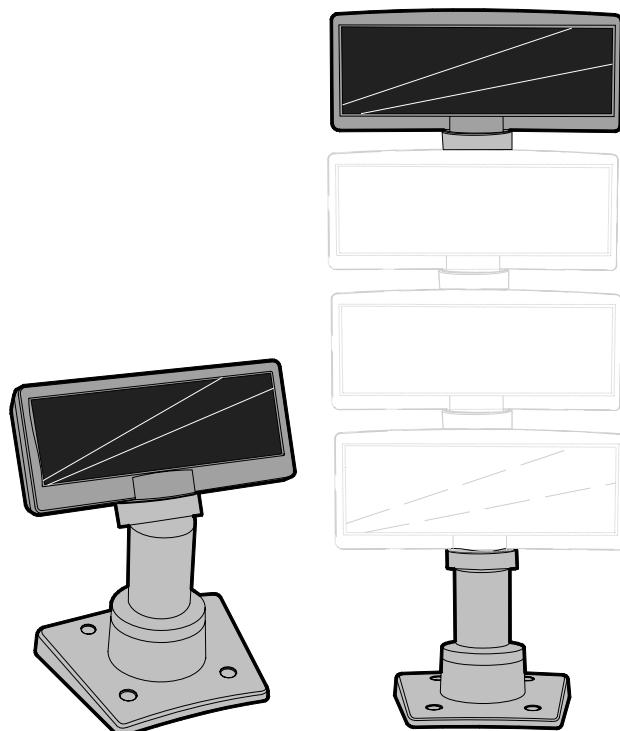
- Display
 - 2X20 Character Vacuum Fluorescent Display (VFD)
 - 7X9 pixel characters
 - Character height
 - Minimum - 9mm
 - Maximum - 11mm
- PCB
 - Microcontroller
 - EIA 232 Interface support
 - USB 2.0 Interface support
- Cabinet
 - UV Stable Material
 - Available in NCR Light Gray (G-11) and NCR Charcoal Gray (CG1)
- Connectors
 - 9 pin D sub
 - Powered USB
- Cables
 - Powered EIA-232
 - Powered USB Cable
 - Unpowered EIA-232 Cable with Y-Connection for Power Brick
 - Unpowered USB Cable with Y-Connection for Power Brick
 - 1m and 4m Lengths

- Power Supply
 - Universal Power Supply (12V, 12W output)
 - 8 pin Molex Connector
- EIA-232 or USB 2.0 I/F support
 - The components for both interfaces are populated on a single printed circuit board. Both interfaces are active, though only one interface can be physically connected at a time. The display communicates via the interface connected to it.
- Mounting Options
 - Table Mount, 4-in. Post
 - Table Mount, 8-in. Post
 - Table Mount, 12-in. Post
 - Table Mount, 16-in. Post
 - Integrated Mount for NCR 7456, 7459, 7458

Character Sets

- Support for 19 character sets
- 3 Character sets in base unit
 - Code Page 858 (International)
 - Katakana
 - Code Page 866 (Cyrillic)
- 32 KB Flash Memory for support of up to 16 additional character sets

NCR 5975 Graphical VFD Customer Display



22933

The NCR 5975 Customer Display is designed to be an optional display device for the NCR retail terminals. It can also serve as a display for any industry-standard PC. It is a Vacuum Fluorescent Display (VFD).

- 5975-2010 Graphical VFD (G11)
- 5975-2011 Graphical VFD (CG1)

Hardware Features

- Display
 - 256x64 Graphic Vacuum Fluorescent Display (VFD)
- PCB
 - Microcontroller
 - EIA 232 Interface support
 - USB 1.1 Interface support
 - USB 2.0 Interface support
- Cabinet
 - UV Stable Material
 - Available in NCR Light Gray (G-11) and NCR Charcoal Gray (CG1)
- Connectors
 - 9 pin D sub
 - Powered USB
- Cables
 - Powered EIA-232
 - Powered USB Cable
 - Unpowered EIA-232 Cable with Y-Connection for Power Brick
 - Unpowered USB Cable with Y-Connection for Power Brick
 - 1m and 4m Lengths
- Power Supply
 - Universal Power Supply (12V, 12W output)
 - 8 pin Molex Connector

- EIA-232 or USB 1.1/2.0 I/F support
 - The components for both interfaces are populated on a single printed circuit board. Both interfaces are active, though only one interface can be physically connected at a time. The display communicates via the interface connected to it.
- Mounting Options
 - Table Mount, 4-in. Post
 - Table Mount, 8-in. Post
 - Table Mount, 12-in. Post
 - Table Mount, 16-in. Post
 - Integrated Mount for NCR 7456, 7467, 7458

Character Sets

- Support for 21 character sets
- 5 Character sets in base unit
 - Code Page 858 (International)
 - Katakana
 - Code Page 866 (Cyrillic)
- 32 KB Flash Memory for support of up to 16 additional character sets
- Weights and Measures support

Software Features

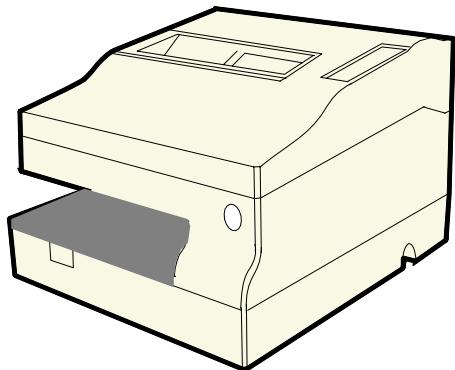
- Bi-directional parallel interface
- Five default character sets:
 - 16 x 16 or 24 x 24 dots full size JIS 1 and 2 Kanji characters
 - 8 x 16 or 12 x 24 dots half size ANK characters
 - 5 x 7 dots Katakana characters (Fixed: not downloadable)

- Four downloadable character sets:
 - Japanese
 - Traditional Chinese
 - Simplified Chinese
 - Korean-1 (Wansung)
- End User Defined Characters (EUDC)
 - 5 x 7 dot characters
 - 8 x 16 or 16x16 or 12 x 24 or 24 x 24 dot characters
- Diagnostics
 - Micro-controller test
 - External memory test
 - Display test

Printers

NCR 7162 Printer

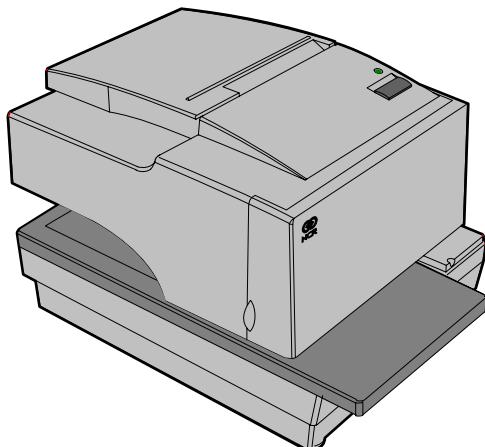
The NCR 7162 is a dot matrix printer that provides up to 40 columns receipt and journal, and up to 88 columns of slip print. The printer's features include paper low sensors, slip-out detectors, automatic paper cutting, and two cash drawer kick out connectors. It has an RS-232 data interface. It can receive its power from an external power supply or through the 24V Powered USB port on the terminal. It also has a connector for cash drawers.



15220

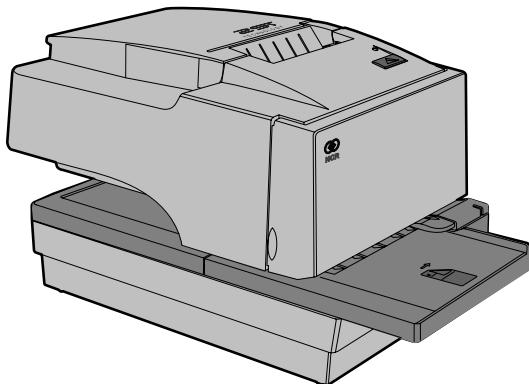
NCR 7167 Printer

The NCR 7167 Printer is a fast, quiet, relatively small and very reliable multi-function printer. It prints receipts, validates and prints checks, and prints on a variety of single or multiple part forms. There is no journal as it is kept electronically by the host terminal. The printer can connect through a USB port or a serial port. It can receive power from a power supply or through a USB+ power cable.



19711

NCR 7168 Printer



23446

The 7168 printer is a fast, quiet, relatively small and very reliable multiple-function printer with front and back printing on the receipt paper capability. It prints receipts, validates and prints checks, and prints on a variety of single- or multiple-part forms. There is no journal as it is kept electronically by the host computer.

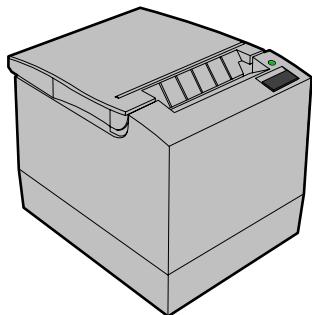
The industry-standard RS-232C communication interface allows the 7168 to be connected to any host computer that uses RS-232C or USB communication interface.

The receipt station uses thermal printing technology. Therefore, there is no ribbon cassette to change and paper loading is extremely simple. Printing on single- or multiple-part forms, validating checks, and printing checks is also easy in the accommodating slip station.

Another feature is the Magnetic Ink Character Recognition (MICR) check reader with parsing, which reads account numbers on checks for easy verification. An extended slip table is available for handling large forms and is standard with the MICR option.

NCR 7197 Printer

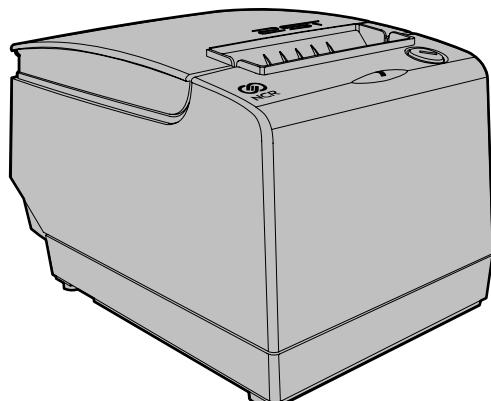
The NCR 7197 Printer is a fast, quiet, relatively small and very reliable receipt printer. It prints receipts and two-color printing. The printer can connect through a USB port or a serial port. It can receive power from a power supply or through a USB+ power cable.



19712

NCR 7198 Printer

The 7198 printer is a fast, quiet, relatively small and very reliable printer with front and back printing on the receipt paper capability. The printer can connect through a USB port or a serial port. It can receive power from a power supply or through a USB+ power cable.



23833

Chapter 2: Hardware Installation

Introduction

This chapter explains how to perform an out-of-box installation of the RealPOS 80xRT hardware and how to install optional peripheral devices.

The 7459 can also be installed in an integrated configuration using the 7459-K300 (G11) or 7459-K301 (CG1) kits. These kits are designed with flexibility of how to configure the integrated displays and printers. Fillers are used where there are no peripherals present. Please refer to the kit instructions for installation procedures of an integrated configuration.

The 7459 is very flexible in how it can be installed. A *typical* configuration is discussed in this document. Your configuration may require adjustments to the procedures.

Installation Restrictions

- Before installing the RealPOS 80xRT, read and follow the guidelines in the RealPOS 80xRT *Site Preparation* (B005-0000-1760) and the NCR *Workstation and Peripheral AC Wiring Guide* (BST0-2115-53).
- Install the RealPOS 80xRT near an electrical outlet that is easily accessible. Use the power cord as a power disconnect device.
- Do not permit any object to rest on the power cord. Do not locate the RealPOS 80xRT where the power cord can be walked on.
- Use a grounding strap or touch a grounded metal object to discharge any static electricity from your body before servicing the RealPOS 80xRT.

Warning: This unit contains hazardous voltages and should only be serviced by qualified service personnel.

Warning: DO NOT connect or disconnect the transaction printer while the terminal is connected to AC power. This can result in system or printer damage.

Warning: DO NOT connect or disconnect any serial peripherals while the terminal is connected to AC power. This can result in system or printer damage.

Out-of-Box Failures

During installation if there is an Out of Box failure, the defective component will be replaced. The defective part number must be identified by trained service personnel. If required, contact your Equipment Provider, NCR Customer Service or your Service Provider to diagnose the failure to the component level.

A replacement component can be acquired by contacting the NCR Customer Satisfaction Hotline between the hours of 8AM and 5PM EST, Monday – Friday:

- 1-800-528-8658 (USA)
- 770-623-7400 (Internationally)

or

E-mail: CustomerSat.Retail@NCR.com

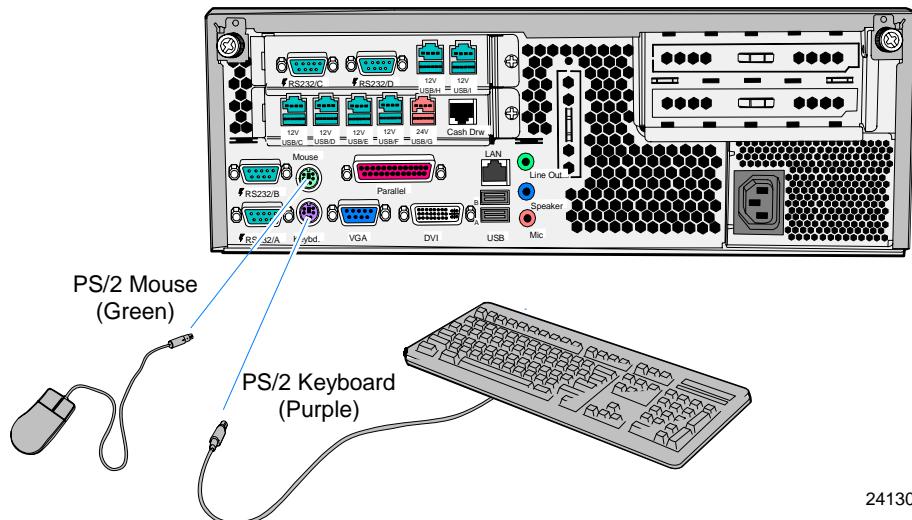
Please have the following information available:

1. NCR Order Number (Order # on label of box)
2. Product Model Number
3. Unit Serial Number
4. NCR part number of defective/missing/wrong component
5. Number of Units Staged/Installed
6. Organization Code
7. Shipping Address with Contact Name & Phone Number

Keyboard and Mouse Connections

PS/2 keyboards and mice are supported through dedicated connectors on 7459 models.

Note: PS/2 Retail keyboards cannot be used in configurations with *Wedge type* DynaKeys or Touchscreen displays. However, standard PC keyboards can be used with these displays.



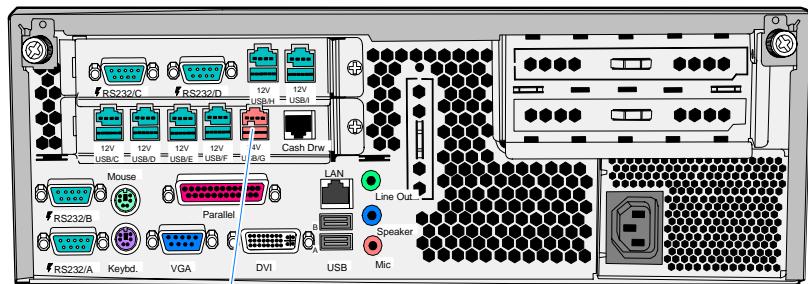
24130

Installing a Transaction Printer

The Printer is connected to a USB interface or an RS-232 interface. It receives power through a Powered USB power cable.

USB Installation

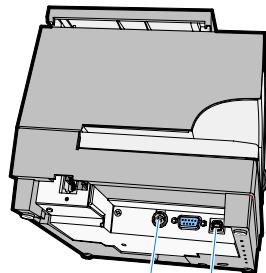
Connect the Powered USB Printer Interface Cable to the *USB Connector* and *Power Connector* on the printer and to the *24V Powered USB Connector* on the terminal.



24V USB

497-0441177 - 1 m
(1432-C088-0010)

497-0441178 - 4 m
(1432-C088-0040)



24V USB

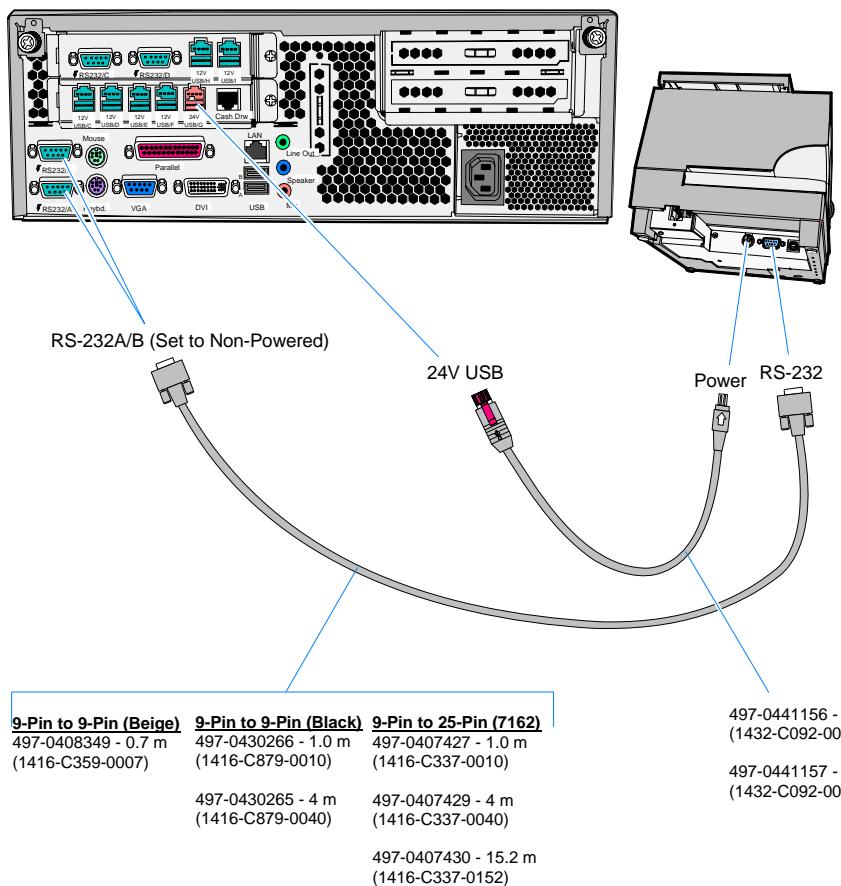
24125

RS-232 Installation w/Power from Powered USB

1. Connect the RS-232 Printer I/F Cable to the *RS-232 Connector* on the printer and to a non-powered *RS-232 Connector* on the terminal.

Note: The factory default settings for the COM1 and COM2 ports are *powered* by default. To change a port to non-powered see the Circuit Boards chapter in the *NCR RealPOSxRT Hardware Service Guide*, B005-0000-1761.

2. Connect the Printer Power Cable to the *Power Connector* on the printer and to the *24 V Powered USB Connector* on the terminal.



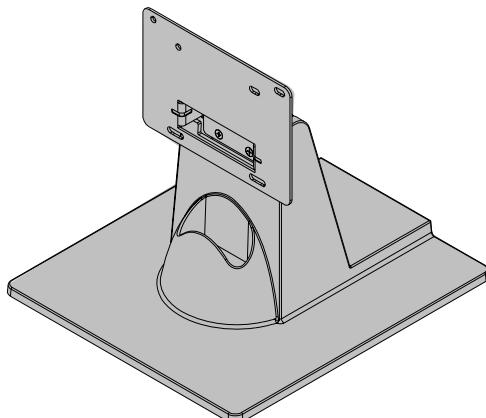
Installing a Remote Operator Display

The Standard Remote Mount is used to mount the following NCR displays.

- NCR 5942 12.1-Inch Monitor
- NCR 5942 15-Inch Monitor
- NCR 5964 12.1-Inch Touch LCD
- NCR 5964 15-Inch Touch LCD
- NCR 5966 15-Inch Touch LCD
- NCR 5954 15-Inch DynaKey

The mount is available in Beige (G11) and Charcoal Grey (CG1).

- 5964-K030 Standard Remote Table Top Base (G11)
- 5964-K031 Standard Remote Table Top Base (CG1)

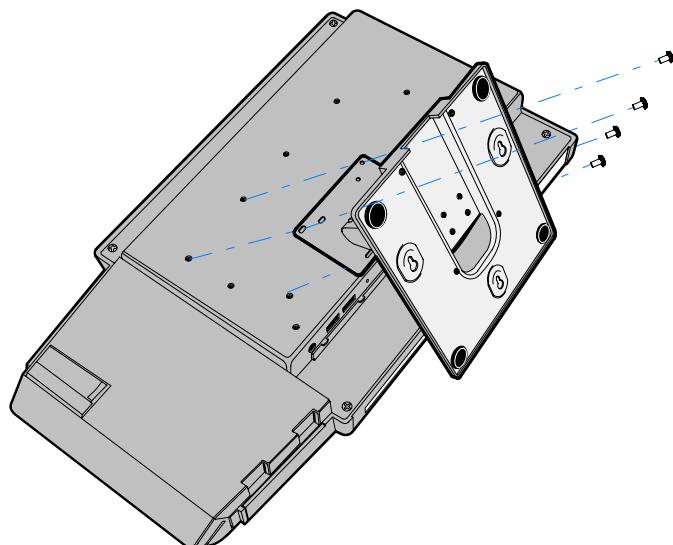


21151b

The displays are installed on the mount in a similar fashion. Only the DynaKey is shown. See the following sections for cable connections to the host terminal.

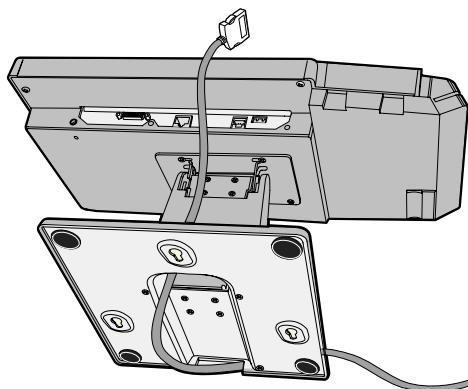
1. Install the mount onto the back of the Operator Display (4 screws).

Note: The back of the DynaKey (shown) has two sets of screw holes for mounting the base, depending on user preference.



21147

2. Route the cable(s) down through mount and out the back of the base.

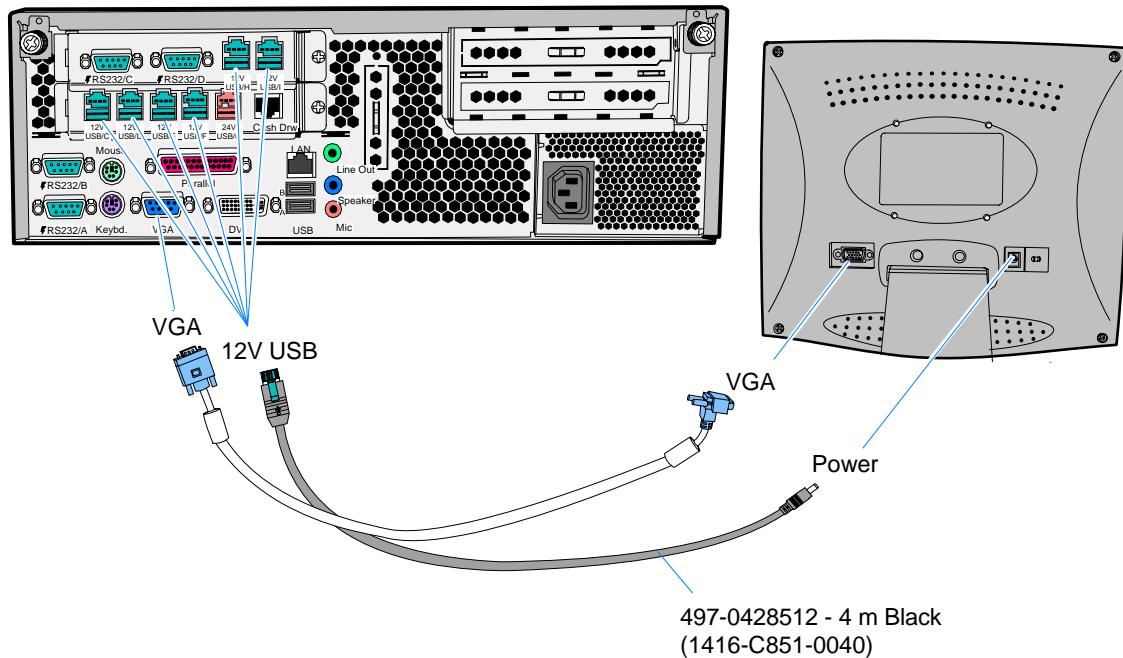


21140

3. Connect the cable to the proper connector on the host terminal.

NCR 5942 12.1-Inch LCD Monitor Cable Connections

The 12.1" 5942 receives video through the VGA interface. It receives power from a DC power source.



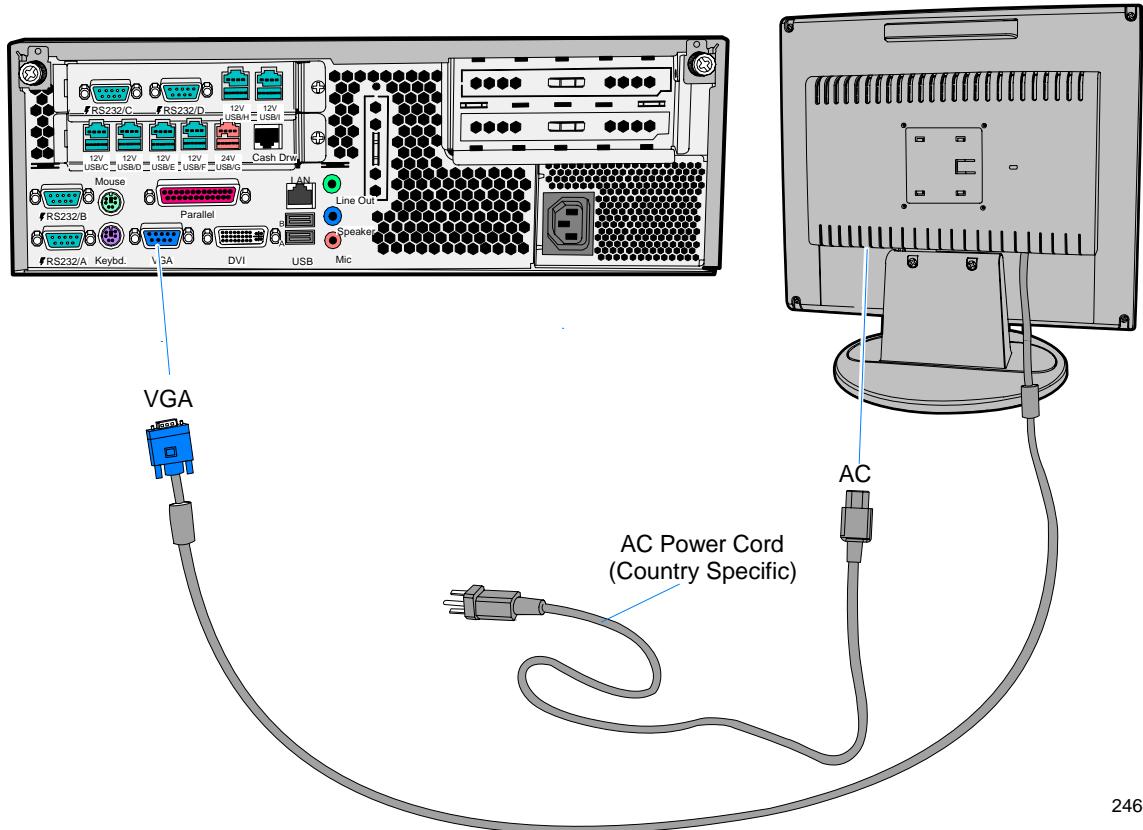
24133

1. Connect the LCD Cable to the VGA connectors on the 5942 monitor and the RealPOS 80xRT terminal.
2. Connect the 12V USB Power Cable to the monitor and to one of the 12V USB ports on the 7459. Optionally, you can use a DC Power Supply.

For more information refer to the *NCR 5942 12.1-Inch LCD Monitor User's Guide* (B005-0000-1394)

NCR 5942 15-Inch LCD Monitor Cable Connections

The 15" 5942 receives video through the VGA interface. It receives power from an AC power source.

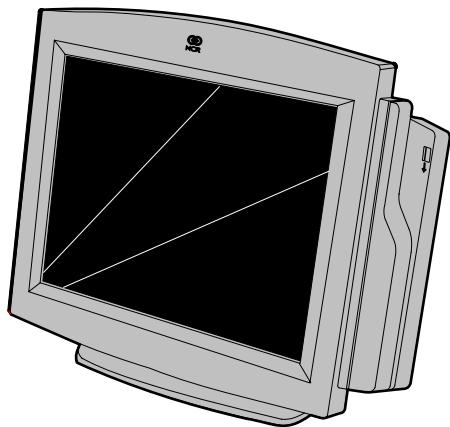


24642

1. Connect the Video Cable from the 5942 to the VGA connector on the RealPOS 80xRT terminal.
2. Connect the AC Power Cord to the monitor. Optionally, you can use the AC Y-Cable to share the terminal AC Power Cord.

For more information refer to the *NCR 5942 15-Inch LCD Monitor User Guide* (B005-0000-1543)

NCR 5964 12.1-inch Touch LCD Cable Connections



19429a

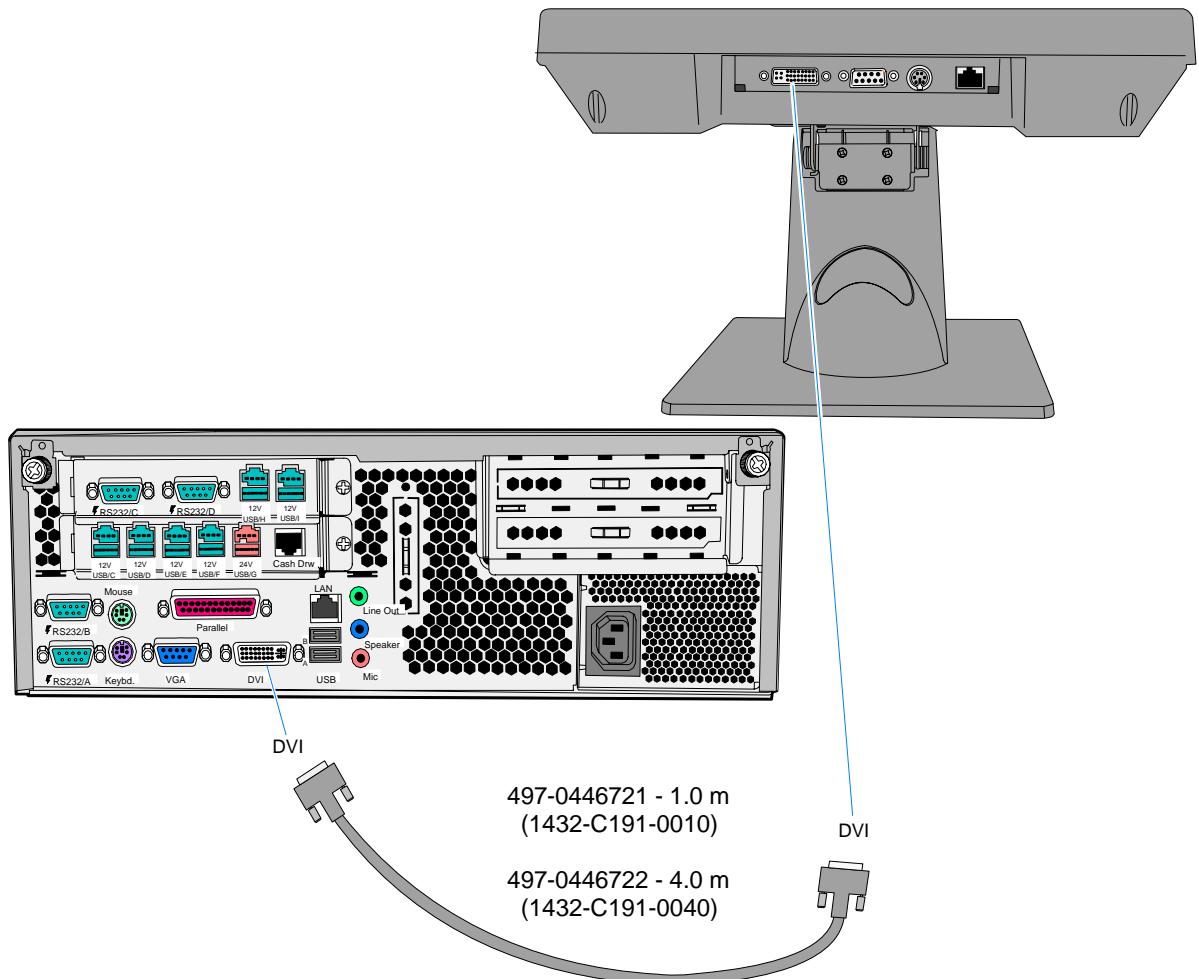
Note: A PC keyboard is required to configure a 5964 12.1-inch Touch LCD.

The following illustrations show the cable connections for the 5964 and the 7459. There are two cables required.

- DVI Cable – provides the video interface to the 5964
- RS-232 Y-Cable – provides a serial interface and power to the 5964. It also connects the 5964 PS/2 keyboard connector to the terminal, which provides an interface for the wedge controller (MSR, PS/2 Keyboard, Scanner, and Tone Speaker).

DVI Connections

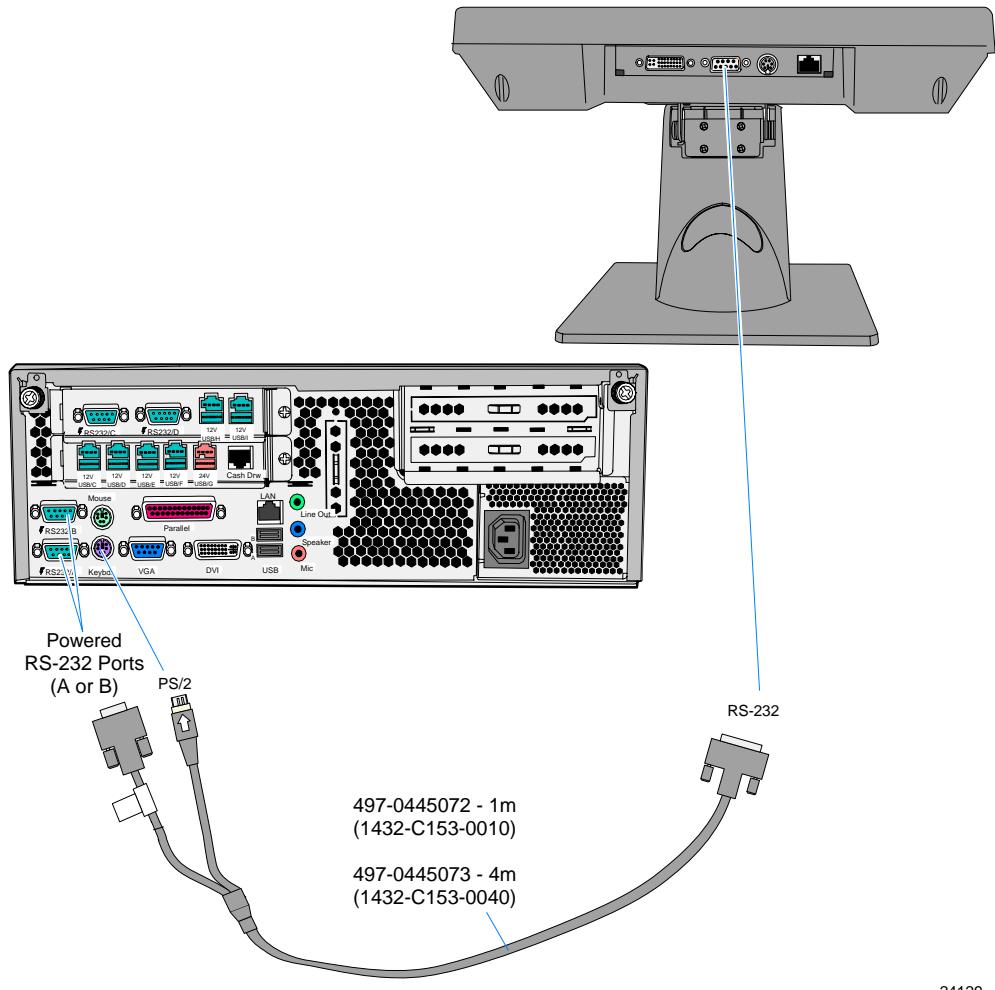
Connect the cable to the *DVI Connectors* on the 5964 display and RealPOS 80xRT terminal.



24128

RS-232 Connections

1. Connect the Y-cable to one of the *Powered RS-232* ports and to the *PS/2* connector on the RealPOS 80xRT terminal.
2. Connect the other end of the Y-Cable to the *RS-232* connector on the 5964 display.

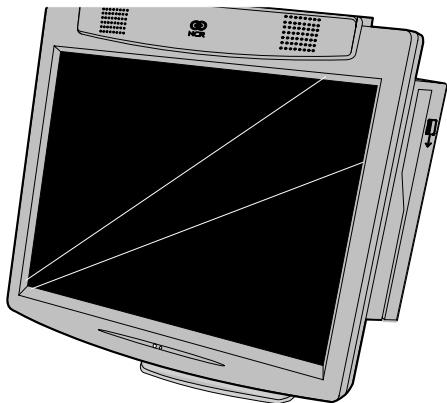


24129

For more information refer to the *NCR 5964 12.1-Inch Touch LCD User's Guide* (B005-0000-1324)

NCR 5964 15-inch Touch LCD Cable Connections

The NCR 5964 15-Inch touch LCD can be integrated in the terminal or it can be connected as a remote device.



22041

Note: A PC keyboard is required to configure a 5964 15-Inch Touch LCD.

The following illustrations show the cable connections for the 5964 and the 7459. Only the 5964-8xxx model is shown, which has a DVI interface connection in addition to a VGA connection.

There are two cables required.

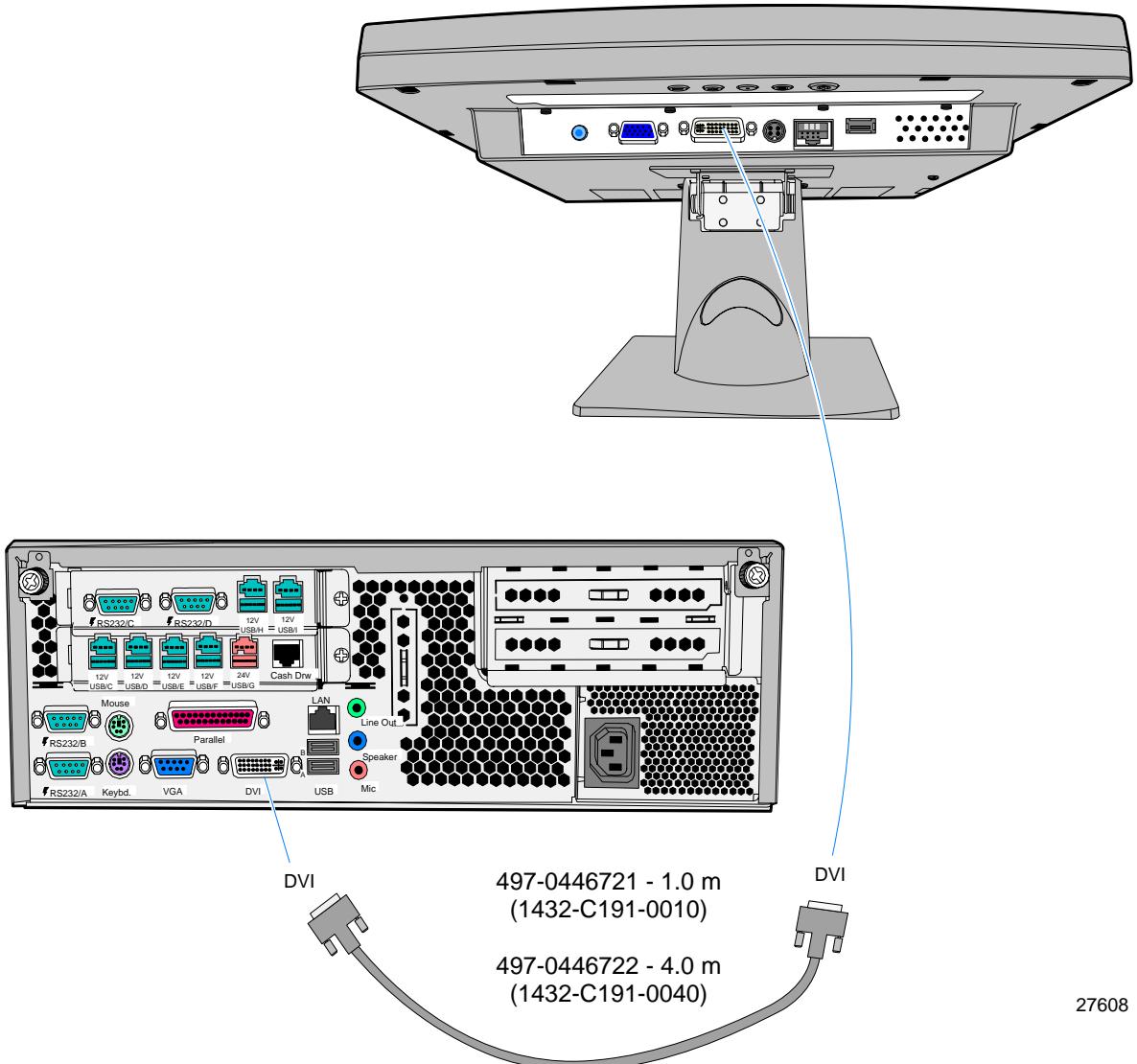
- DVI or VGA cable for video
- Powered Universal Serial Bus (USB) for data and power

Note: Optional Power Brick is available when USB power is not available on the host terminal. A special USB cable is used for data in this case.

- If audio is used, connect the Audio Connector on the 5964 to the Audio Out port on the host computer through the 0.9 m (3 ft.) or 4.6 m (15 ft.) Audio cable.
- There are standard USB ports (1-3) on the 5964 that can be used for additional USB devices.

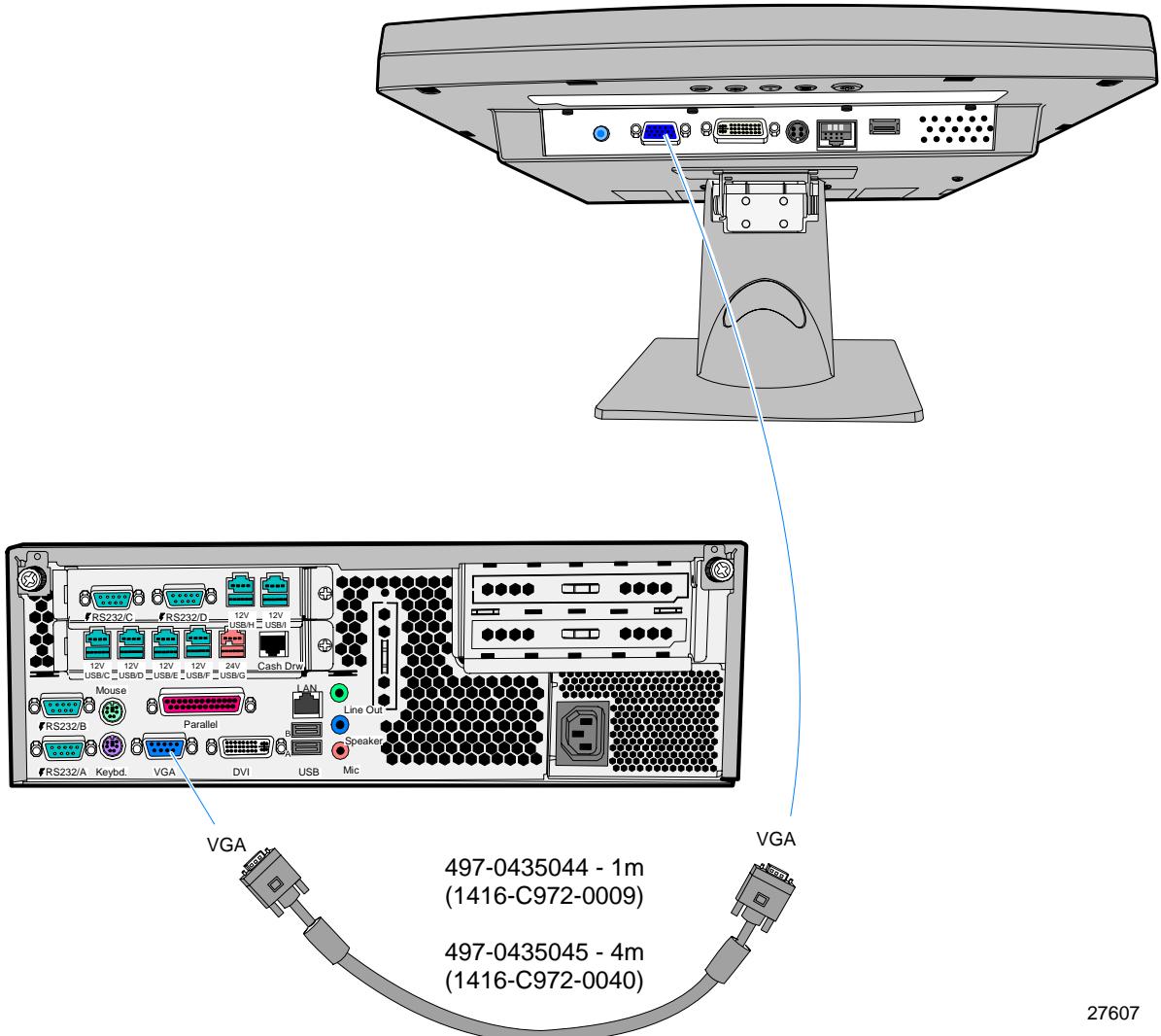
DVI Connections (Video)

Connect the DVI Cable to the *DVI* connectors on the 5964 Touch LCD and host terminal.



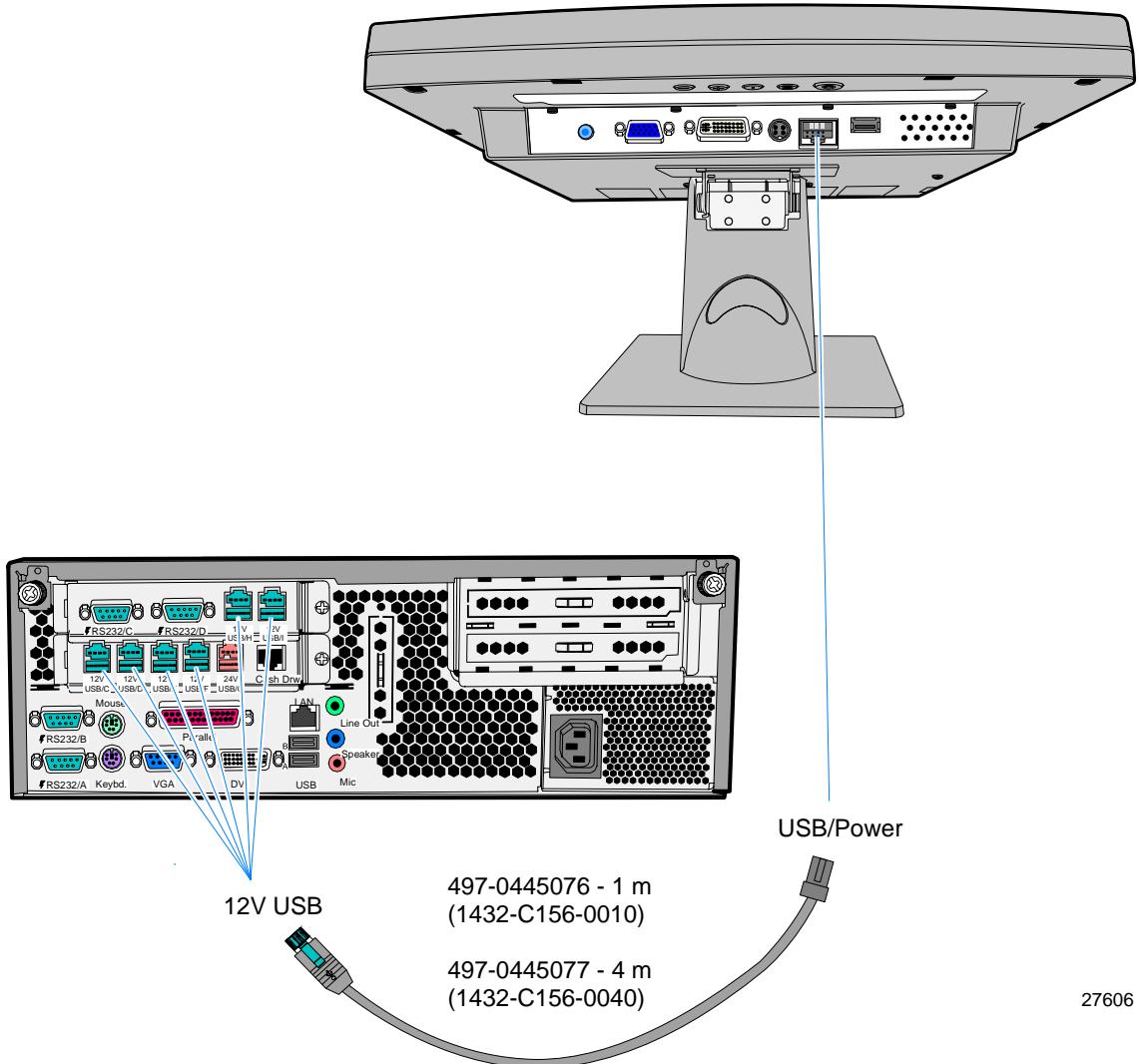
VGA Connections (Video)

Connect the VGA Cable to the VGA connectors on the 5964 Touch LCD and host terminal.



Powered USB Cable Connections (Data and Power)

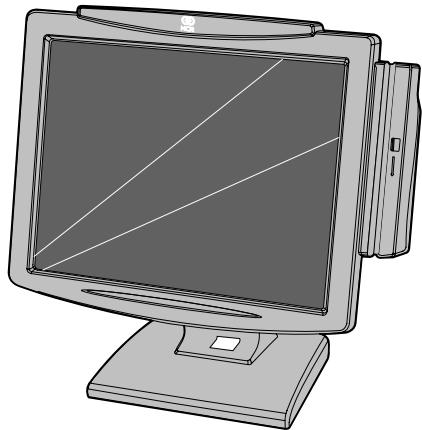
Connect the Powered USB Cable to the 5964 Touch LCD and to one of the *12V Powered USB* connectors on the host terminal.



For more information refer to the *NCR 5964 15-Inch Touch LCD User's Guide* (B005-0000-1570)

NCR 5966 15-inch Touch LCD Cable Connections

The NCR 5964 15-Inch touch LCD can be integrated in the terminal or it can be connected as a remote device.



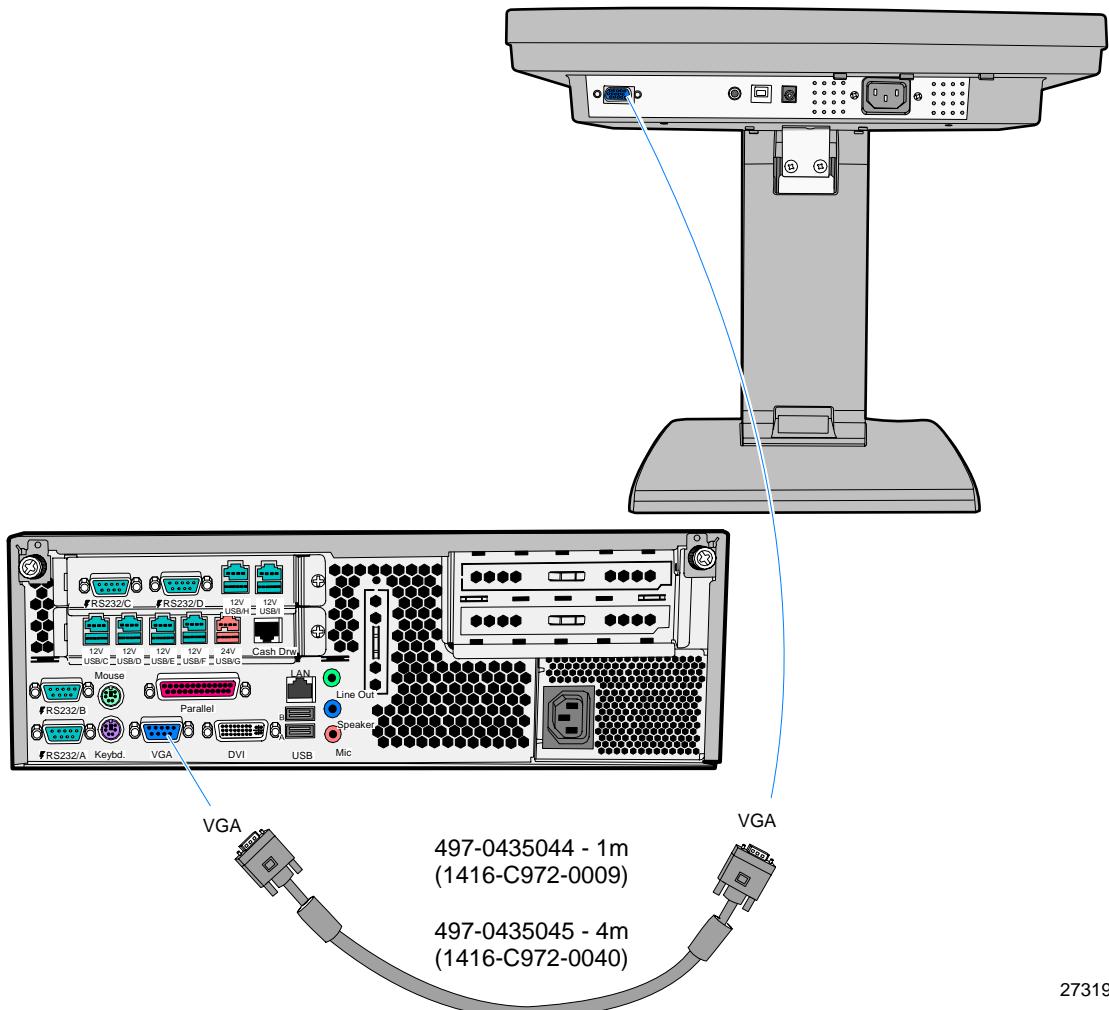
24810

There are two cables required.

- VGA cable for video
- USB cable for data
- Powered Universal Serial Bus (USB) for power
- Audio cable (optional) - Connects to the Audio Connector on the 5966 and the Audio Out port on the 7459.

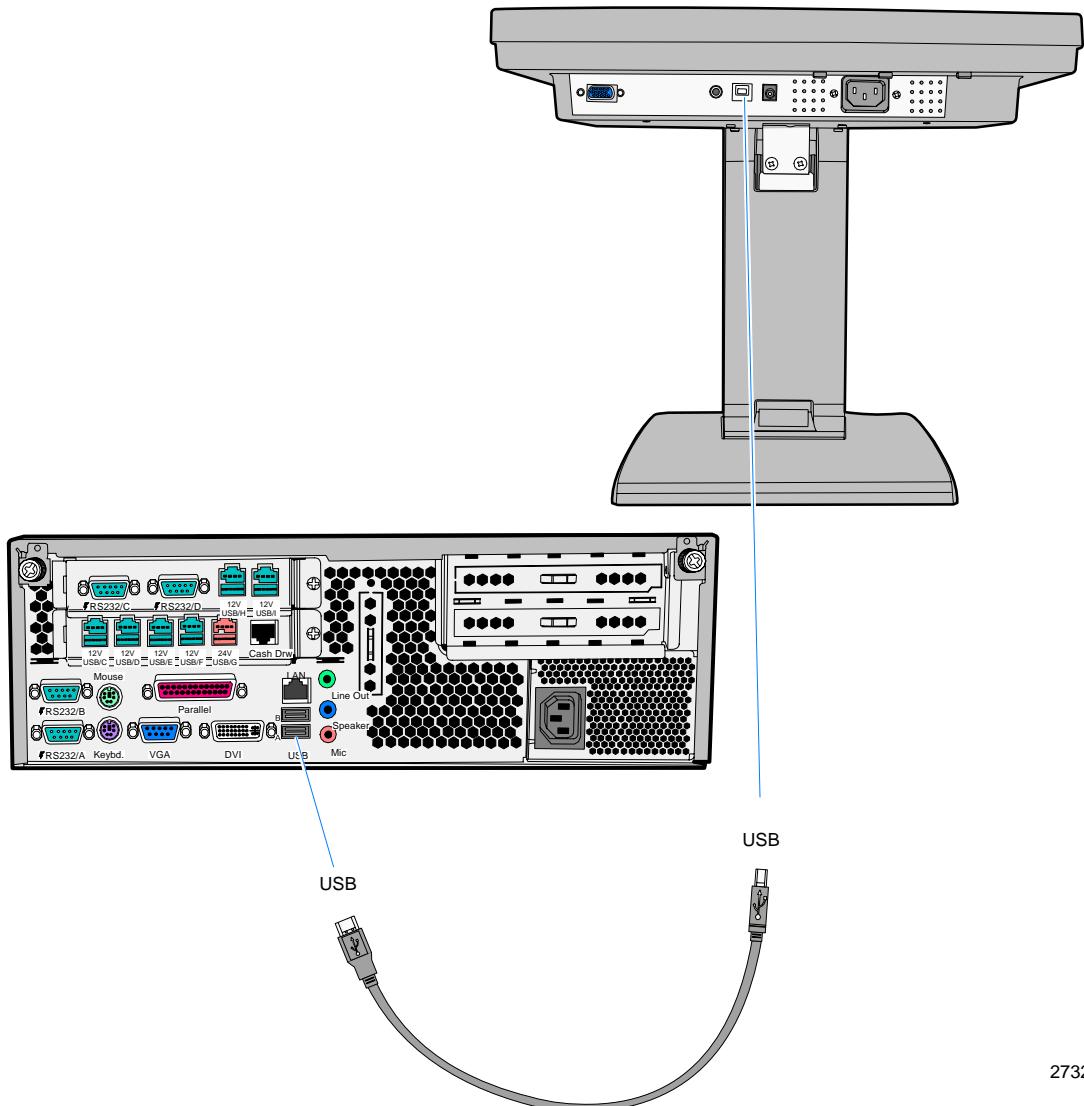
Video Cable Connections

Connect the VGA Cable to the VGA connectors on both the 5966 Touch LCD and 7459.

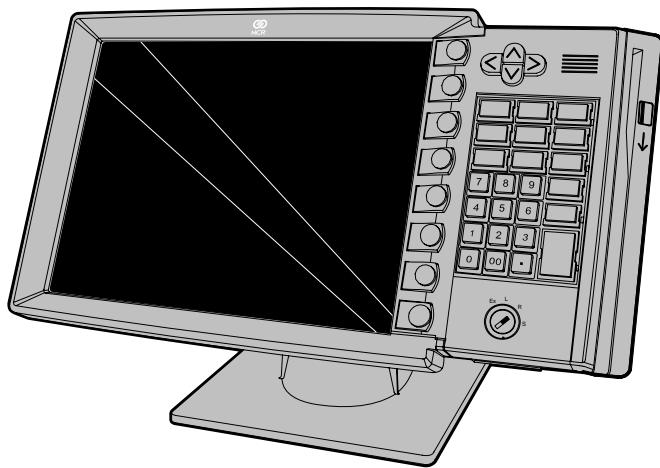


Data Cable Connections

Connect the included USB Cable to the *USB* connector on the 5966 and to a *USB* connector on the 7459.



NCR 5954 USB DynaKey Cable Connections



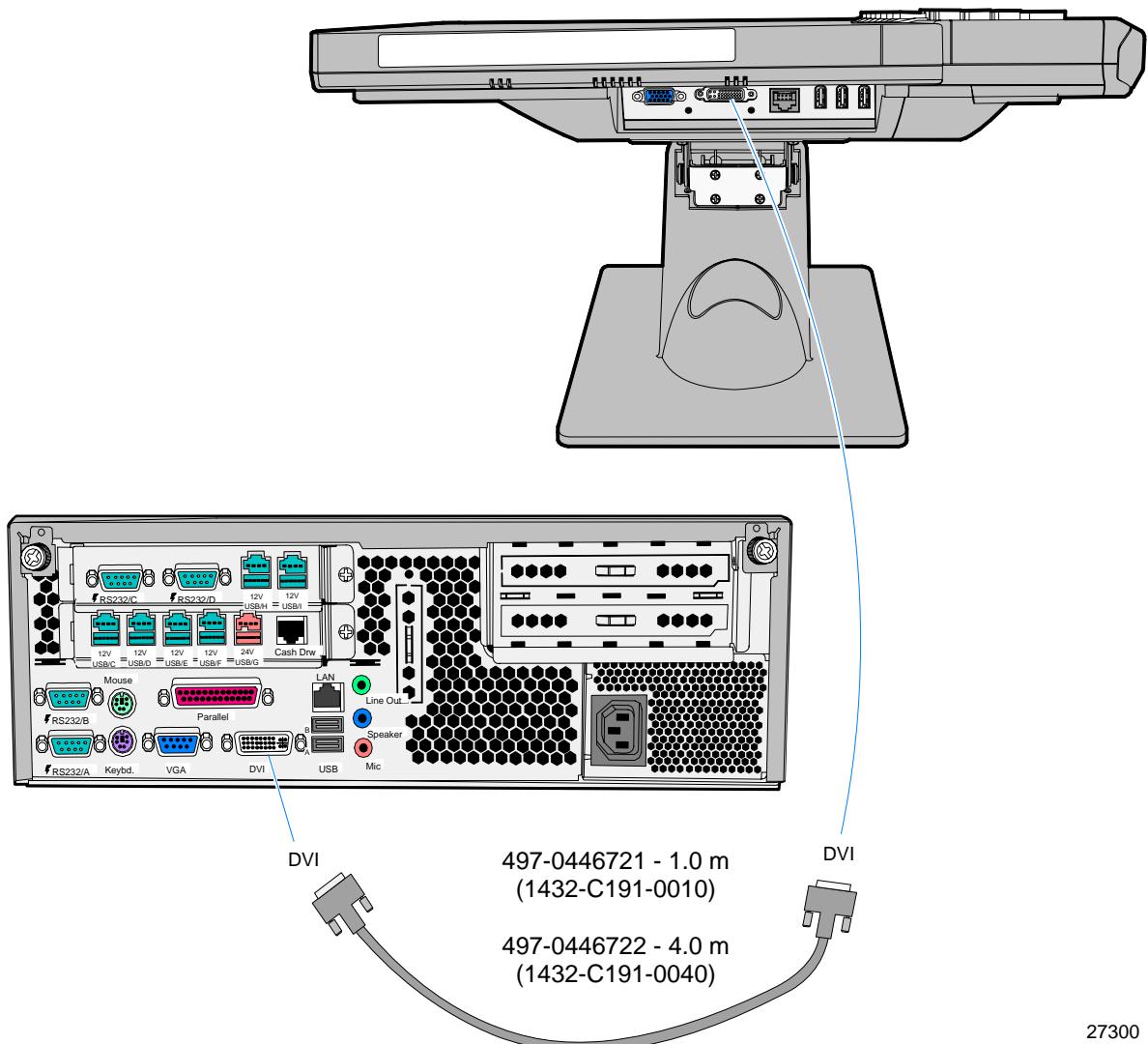
23815

The DynaKey connects to the terminal via two cables.

- Digital Video Interface (DVI) or VGA cable for video
- Powered Universal Serial Bus (USB) for data and power

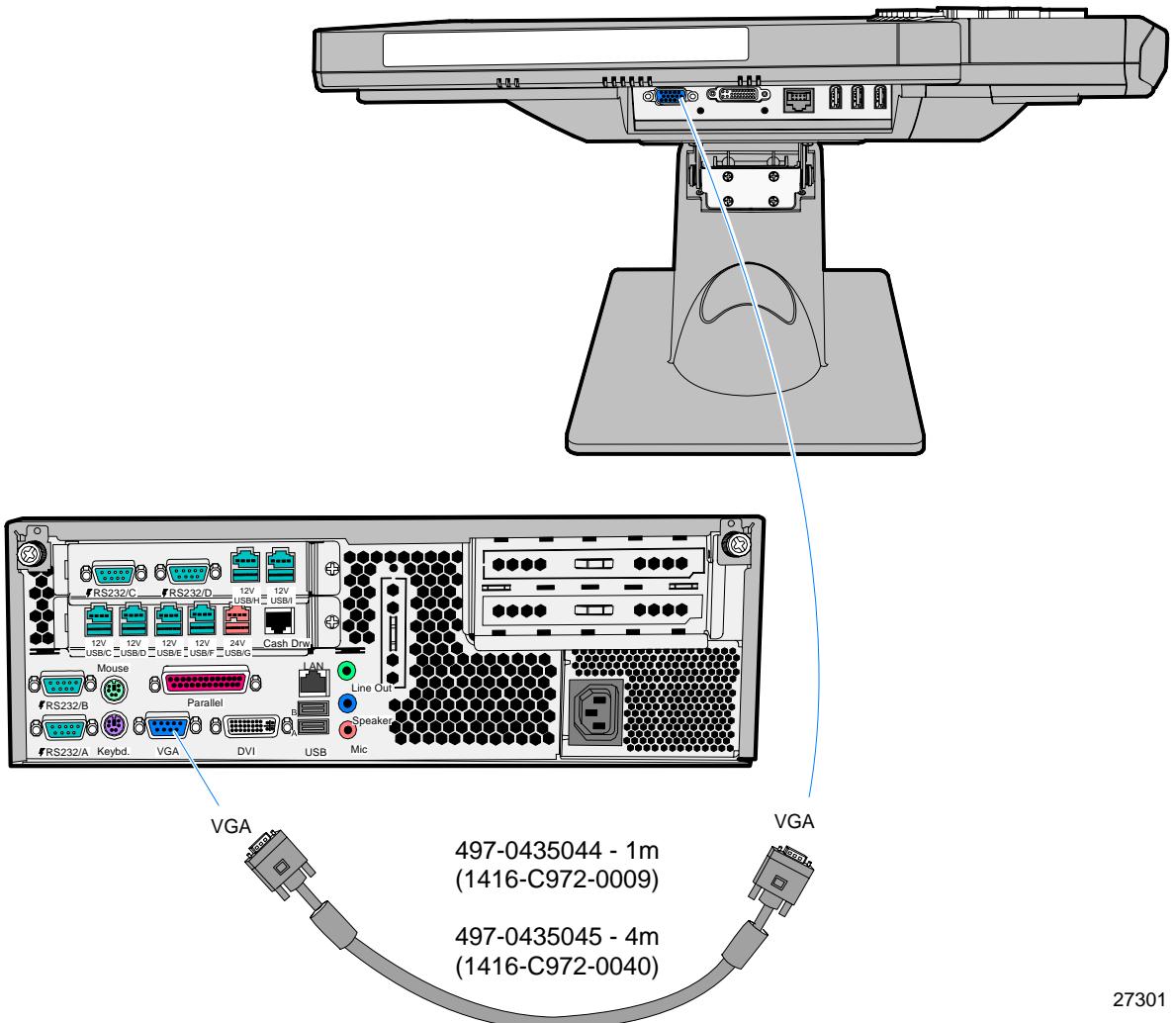
DVI Cable Connections

Connect the cable to the DVI connectors on the DynaKey and terminal.



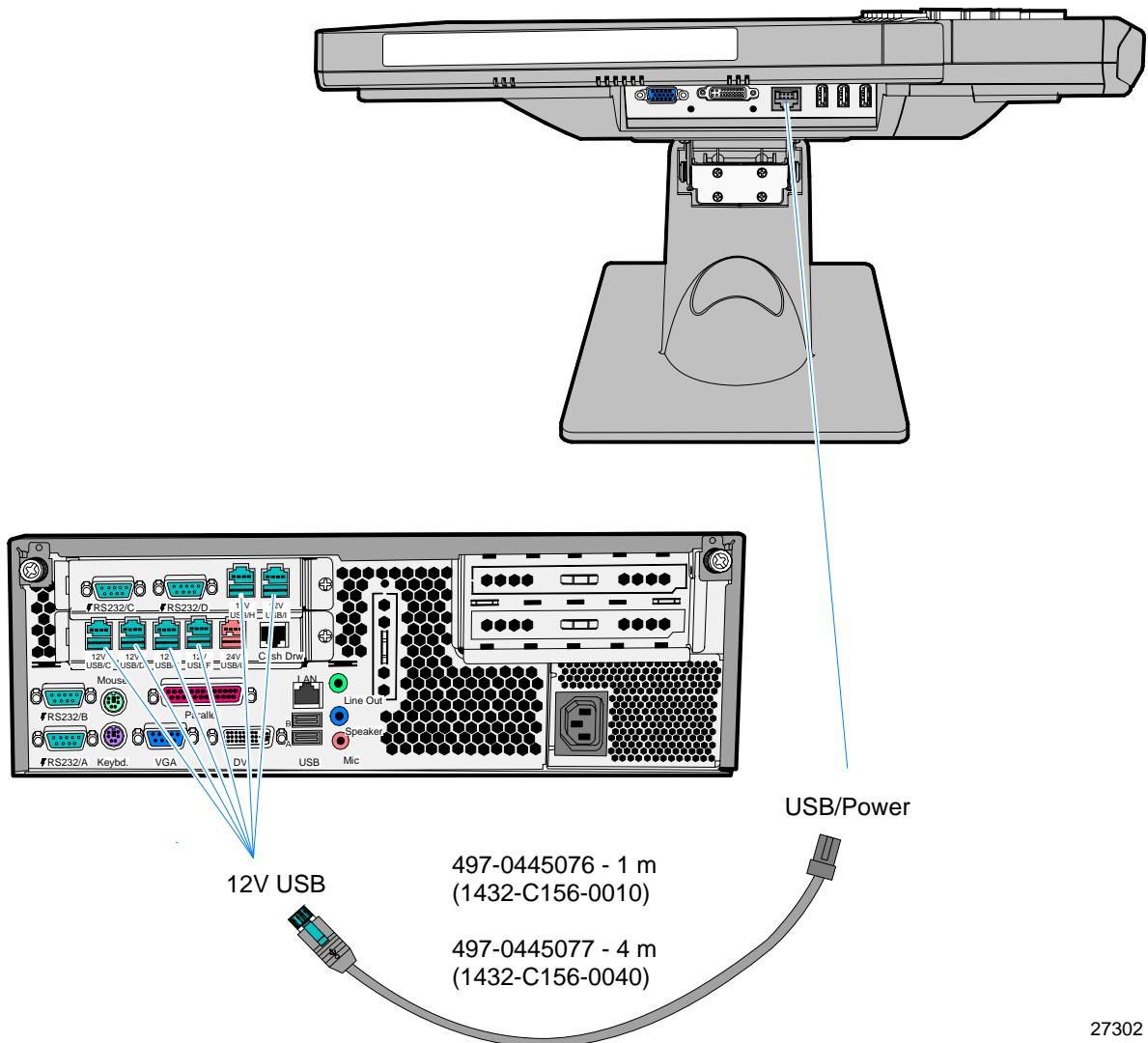
DVI Cable Connections

Connect the cable to the DVI connectors on the DynaKey and terminal.



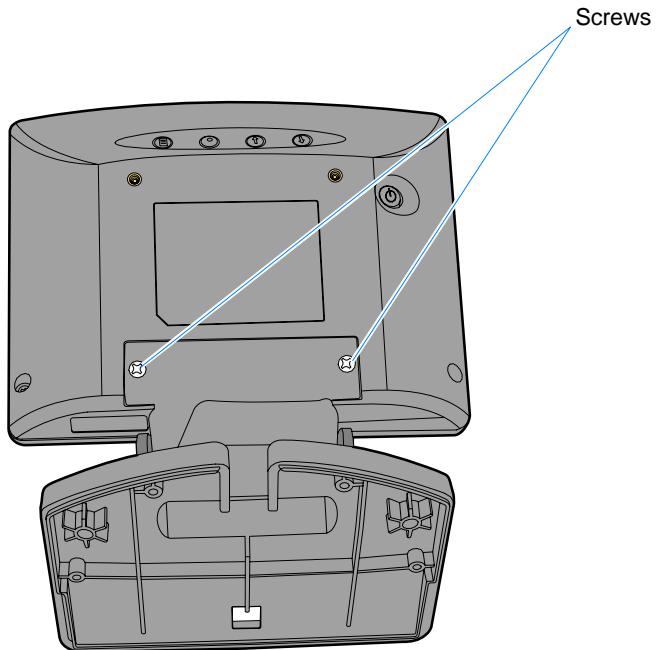
Powered USB Cable Connections

Connect the Powered USB Cable to the DynaKey and to one of the *Powered USB* connectors on the terminal.



Installing an NCR 5982 6.5-Inch Operator Display

1. Remove the Base from the Display (2 screws).



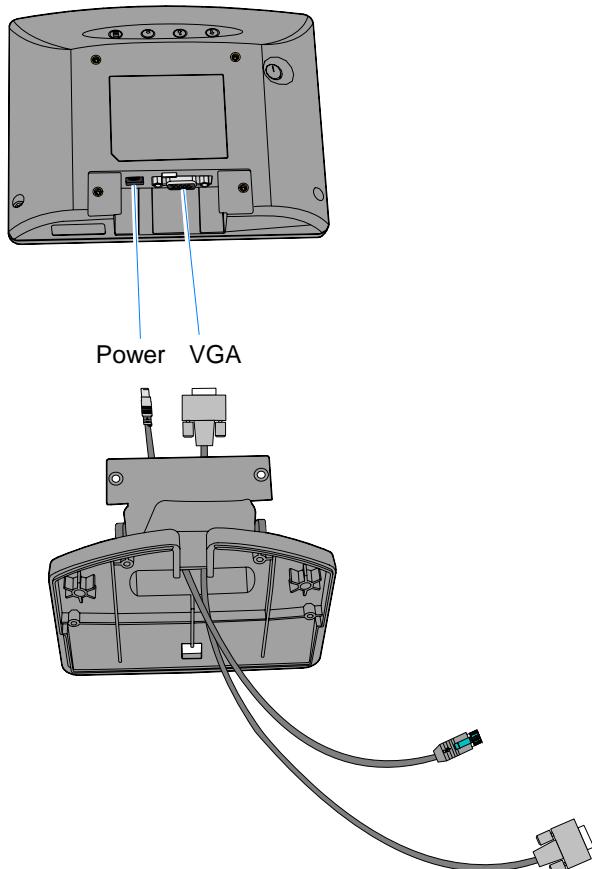
23162

2. Route the VGA and Power cables up through the bottom of the Base.
3. Connect the VGA and Power Cables to the Display.

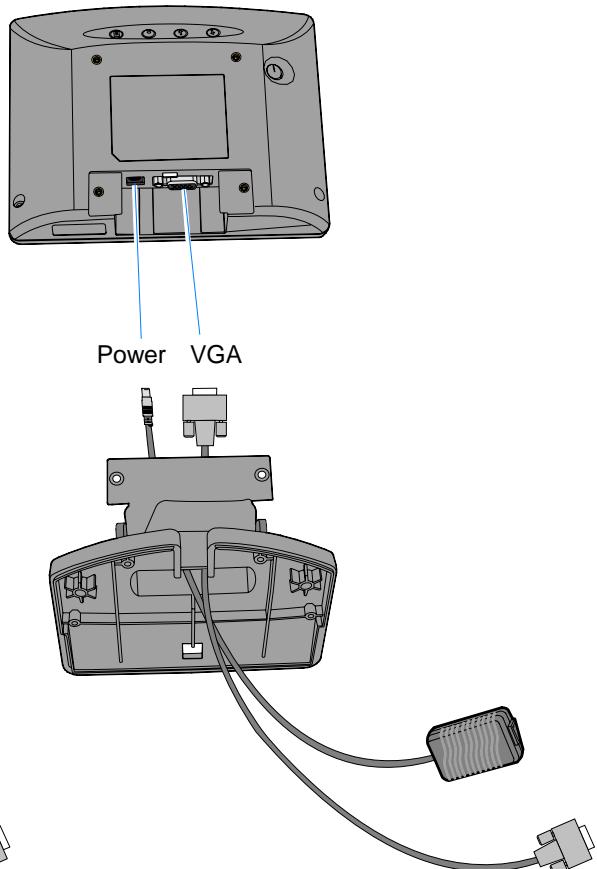
There are two types of power cables

- Powered USB
- Power Brick.

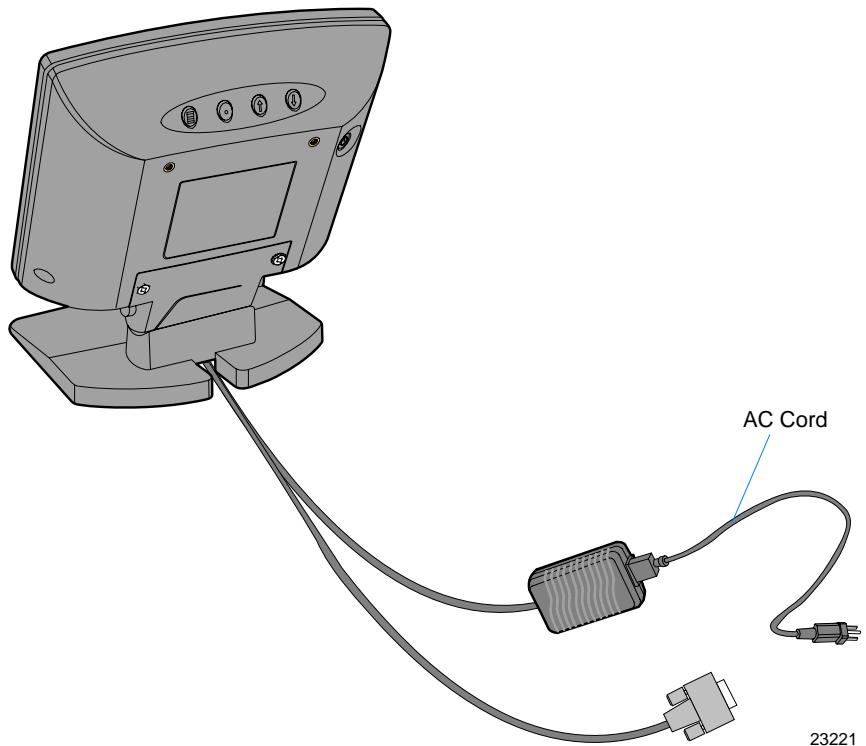
Powered USB



Power Brick



4. Install the Base to the Display (2 screws).
5. Route the cables out the rear of the Base.
6. If you are using a Power Brick, connect the AC Cord to the Power Supply.



Connecting to the Host Terminal

1. Connect the VGA cable to the VGA port on the host terminal.
2. Connect the power cable:

Powered USB – connect to a 12V powered USB port on the terminal.

Power Brick – connect the Power Supply to an AC source.

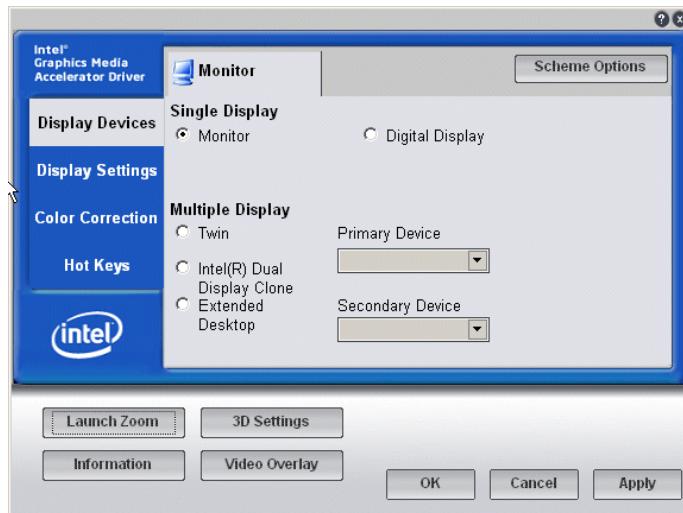
Installing a Secondary Display (Dual Display)

The 7459 Motherboard uses an integrated video controller with the Intel Q965/Q963 Express Chipset Family. This controller provides a Monitor port (VGA) and a Digital Display port (DVI) on the motherboard connector row. These two ports can provide either a single display mode (DVI or VGA) or a dual display mode (DVI and VGA). Dual display mode can be a *clone* (same video data displayed on both displays) or an *extended desktop* (the desktop spans across both displays).

Note: Two DVI or two VGA devices are supported by installing a 7459-K352 DVI/VGA Video Card. See the *Configuring a PCI DVI/VGA Video Card* section.

Intel Graphics Media Accelerator Control Panel

The dual mode is configured using the *Intel® Graphics Media Accelerator Control Panel*. Right click the Desktop. From the menu select **Graphics Properties**.



The monitor selections on the Control Panel vary, depending on the display types that are connected. If only one display is connected to the system you get a message telling you to connect a second display to use this feature.

The following options are available with this configuration.

Mode	Description
Monitor	Single VGA display (This selection is only shown when a VGA display is attached)
Digital Display	Single DVI display (This selection is only shown when a DVI display is attached)
Twin	DVI and VGA displays with the same video content. Similar to the Intel Dual-Display Clone mode, except it is driven by a single pipe, which provides the same content, color depth, resolution and refresh rate.
Intel Dual Display Clone	Drives the VGA and DVI displays with the same video content.
Extended Desktop	Drives the DVI and VGA displays with the desktop that spans from one display onto the other.

Single Display Mode Setup

1. Select **Monitor** (or **Digital Display**).
2. Select **Apply**.
3. Select **OK** within 15 seconds to accept the new settings.



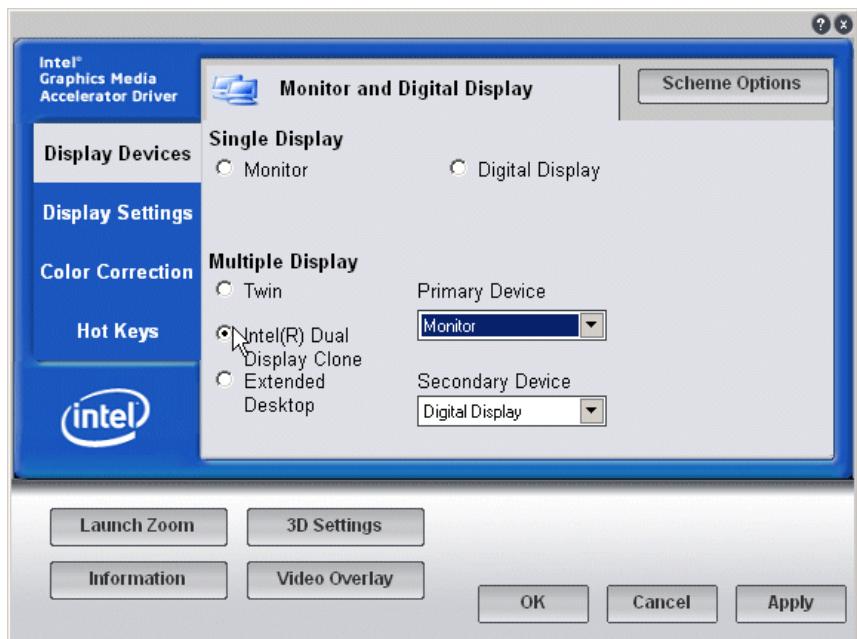
4. Select **OK** to close the driver control window.

Dual Display Clone Setup (DVI and VGA)

1. Select **Intel(R) Dual Display Clone**.
2. Select the Primary Device: **Monitor or Digital Display**.
3. Select the Secondary Device: **Digital Display or Monitor**.
4. Select **Apply**.
5. Select **OK** within 15 seconds to accept the new settings.



6. Select **OK** to close the driver control window.

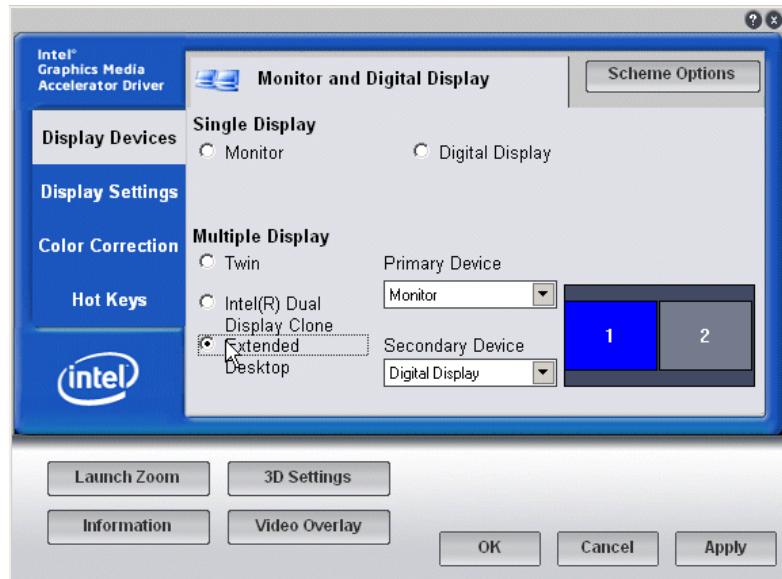


Extended Desktop Dual Display Setup (DVI and VGA)

1. Select Extended Desktop
2. Select **Primary Device**: Monitor or Digital Display. (This display has the Start button and Taskbar)
3. Select **Secondary Device**: Digital Display or Monitor. (This display is the desktop extension)
4. Select **Apply**.
5. Select **OK** within 15 seconds to accept the new settings.

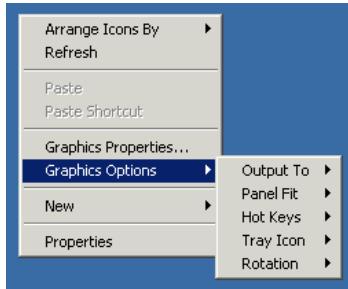


6. Select **OK** to close the driver control window.



Setting the Display Options from the Desktop

Display output options may also be enabled directly from the Windows* Desktop. Right click the Desktop. Then from the menu select: **Graphics Properties**.



Applications may behave differently in a multi-monitor configuration depending on their implementation:

- Standard Windows applications that use the GDI (Graphics Device Interface) will clip the window to each display and accelerate the images separately using the display hardware.
- Applications that span multiple monitors and use Microsoft DirectX*, Direct3D* or DirectDraw* will be software accelerated.
- OpenGL* applications may exit unexpectedly, hardware accelerate one display with unknown results on the other or be software accelerated.
- A full screen command prompt or MS-DOS* application will only function on the Primary Device.

Intel Graphics Controller Hot Keys

Hot Keys provide the same functionality as the Intel Graphics Control Panel with specific keystrokes on the keyboard. These hotkeys are listed in the Intel Control Panel under the Hot Keys tab. The most useful Hot Keys are:

[CTRL] [ALT] [F1] - Monitor in single display mode

[CTRL] [ALT] [F4] - Digital Display in single display mode

Note: The Hot Keys can be used to recover from a blank display in Windows. This is true only if Windows Desktop loads completely; meaning, if Windows is waiting for a login/password entry or if Plug and Play is waiting for operator input, the Hotkeys are not yet active.

Configuring a PCI DVI/VGA Video Card

In order to support dual DVI or dual VGA devices you must install the 7459-K352 DVI/VGA Video Card and driver. The driver is included in the kit with the card.

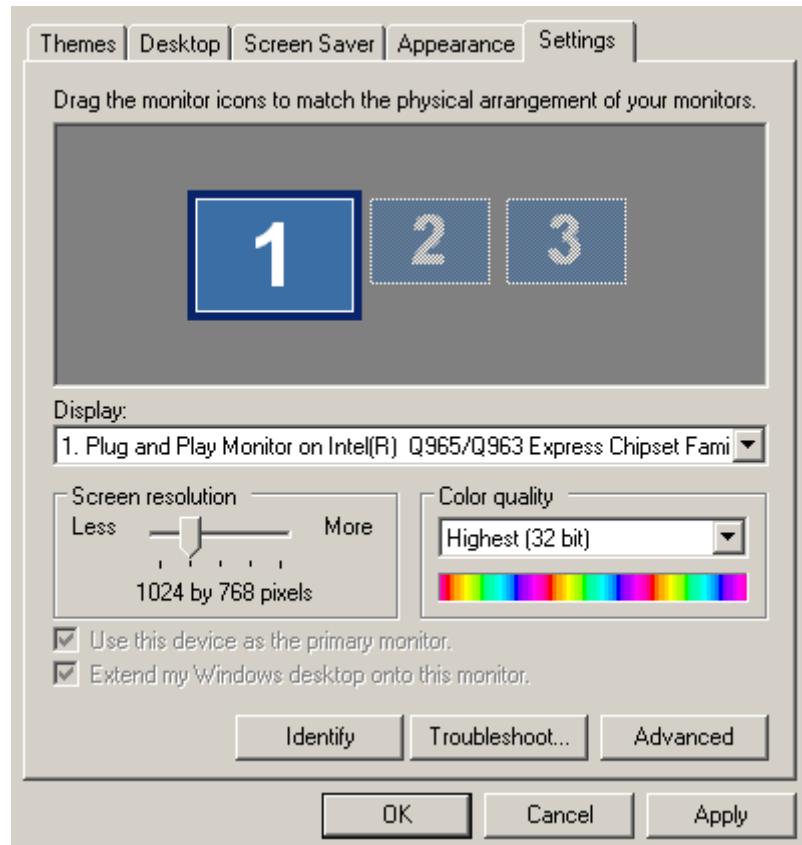
Primary Boot Device

By default, with a PCI Video Adapter installed, the PCI Adapter is the *Primary Boot Device*, meaning this is the device displaying data when you first boot with the second monitor connected. This must be changed to have the Motherboard port to be the Primary Boot Device before you configure the video card. Change this setting in the BIOS Setup Utility.

1. Start the BIOS Setup Utility
2. Select **Chipset** → **North Bridge Configuration** → **Primary Graphics Adapter**.
3. Set the option to **IGD**.

After installing the card and driver boot the system.

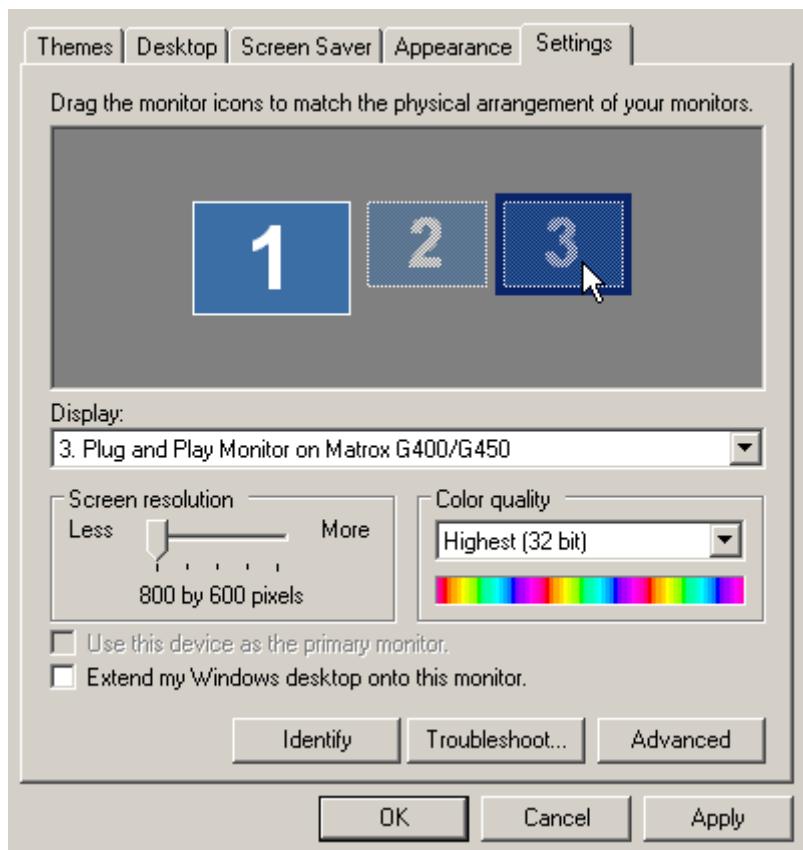
1. Right click the Desktop. Then from the menu select:
Graphics Properties.



2. Select **OK**.

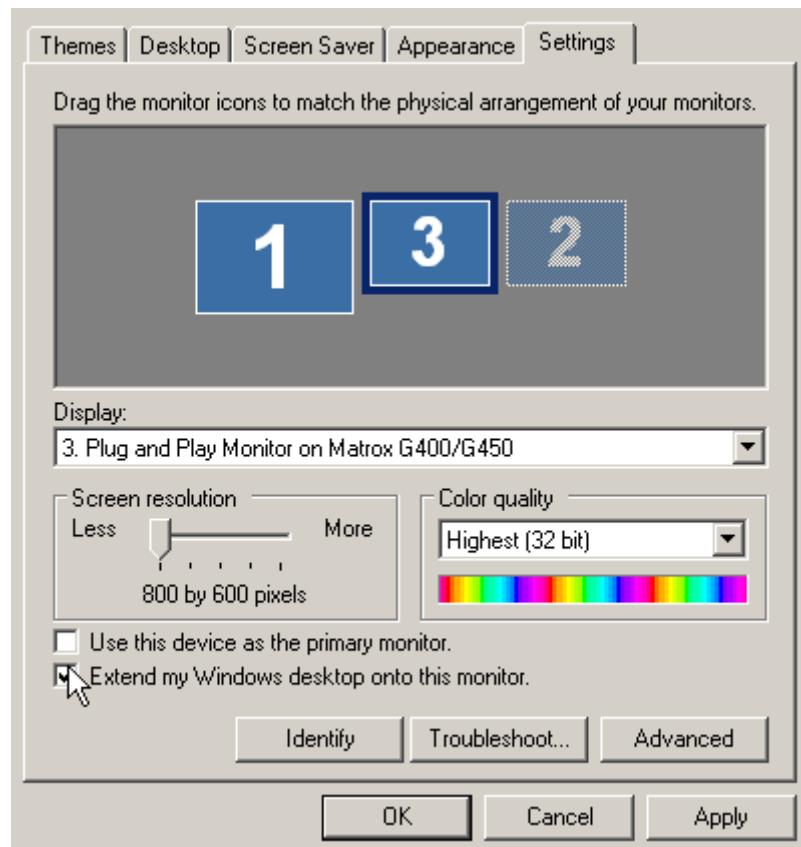
3. Select the monitor icon representing the PCI device (3). The Matrox G400/G450 should display in the Display drop-down menu, indicating you have the correct selection.

Note: The other monitor icon (2) is the second monitor port on the Motherboard.



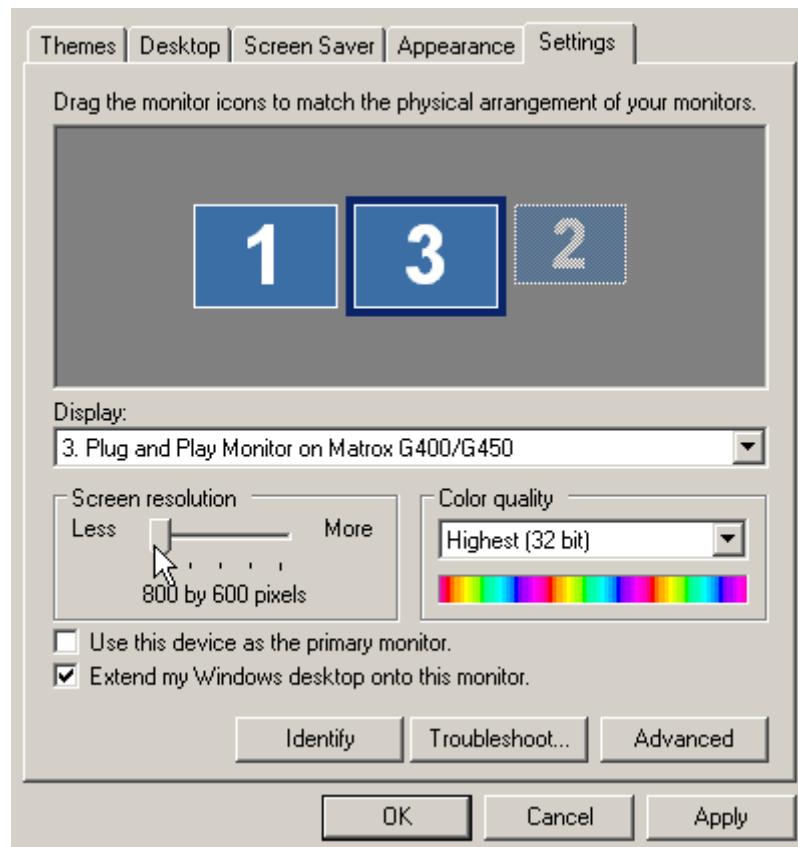
4. Select **OK**.

5. Check the *Extend my Windows desktop onto this monitor* box.



6. Select **OK**.

7. Adjust the *Screen resolution* to match the Primary monitor.



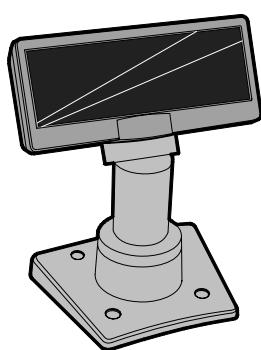
8. Select **OK**.

You should now see both displays.

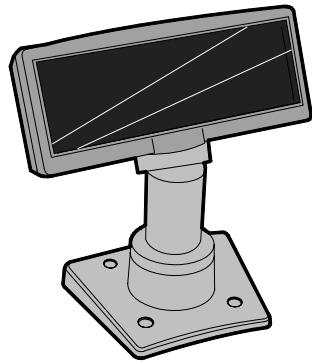
Installing an NCR 5975 Remote Customer Display

There are two models of the NCR 5972 Remote Customer Display:

- 5975-1xxx – 2x20 VFD
- 5975-2xxx – Graphical VFD



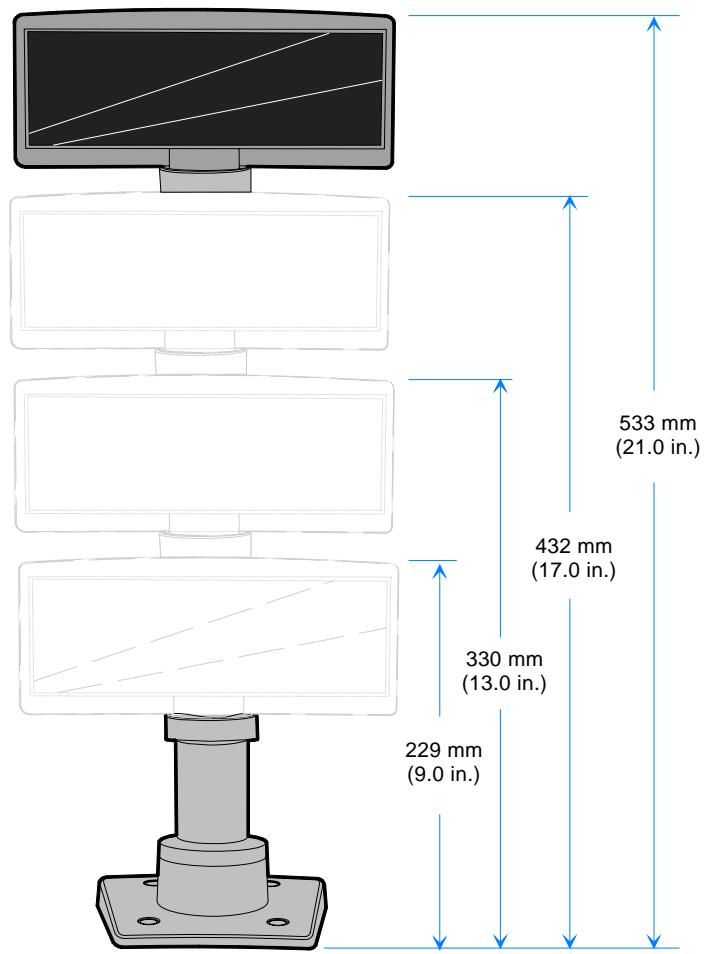
5975-1xxx 2x20 VFD



5975-1xxx Graphical Display

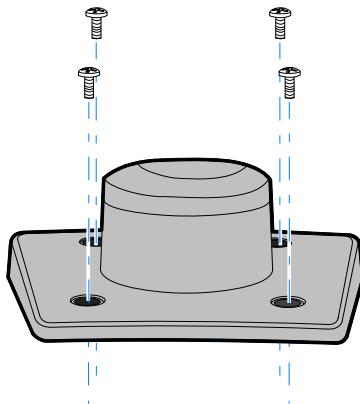
22926

There are four different length posts available, in four inch increments.



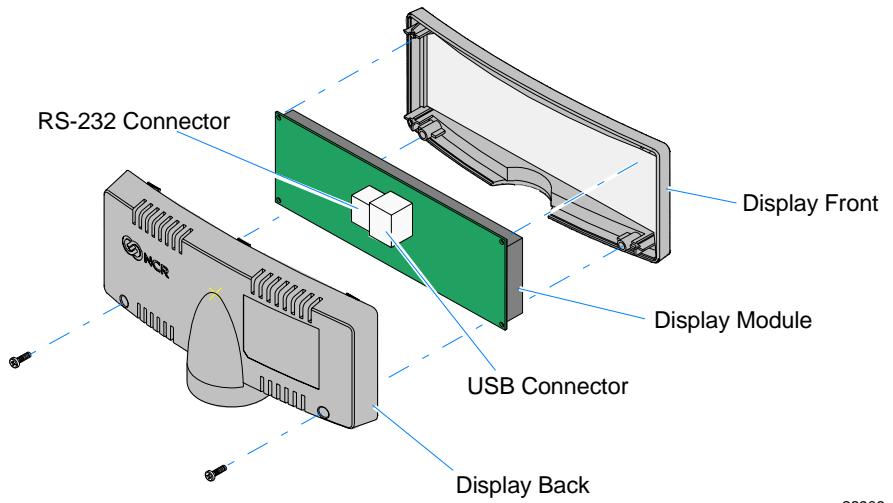
22918

1. Locate the Display Mount within 4 meters (13 ft.) of the host terminal.
2. Determine if the cable should be routed down through the mounting surface or if it should be run on top of the surface. Drill a hole if necessary.
3. If you are installing with a post greater than 215 mm (8.5 in.) secure the Base Plate with screws (4) that are provided.



22930

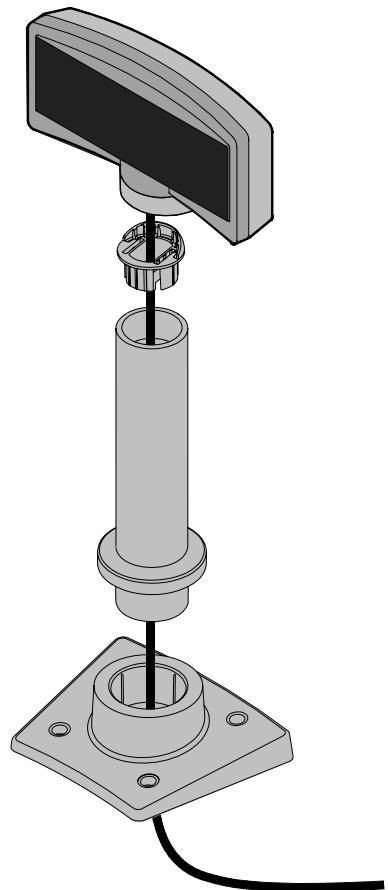
4. Connect the Interface Cable to the Display Module.
 - a. Remove the screws (2) from the Display Back.
 - b. Remove the Display Back.
 - c. Route the Interface Cable though the opening in the Display Back.
 - d. Connect the cable to the proper connector on the Display Module.



22909

- e. Reassemble the Display Assembly.

5. Route the Interface Cable through the Post
6. Assemble the Post components.



22910

7. Connect the Display Cable to the terminal.

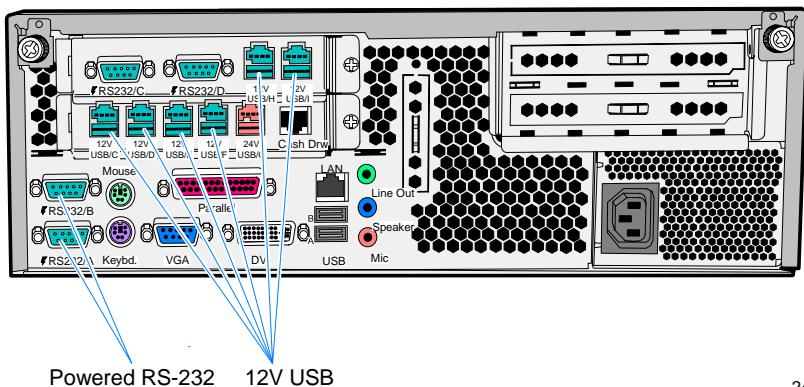
RS-232 Interface (Powered)

Connect the I/F cable to a powered RS-232 connector on the terminal.

Note: The factory default settings for the COM1 and COM2 ports are *powered* by default. To change a port to non-powered see the Circuit Boards chapter in the *NCR RealPOSXRT Hardware Service Guide*, B005-0000-1761.

USB Interface (Powered)

Connect the I/F cable to a powered 12V Powered USB connector on the terminal.



24136

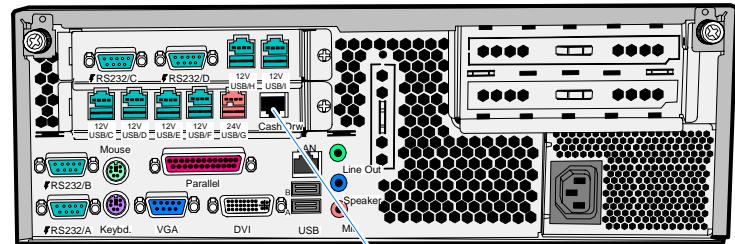
RS-232 Serial Interface

Configure the terminal serial port as follows:

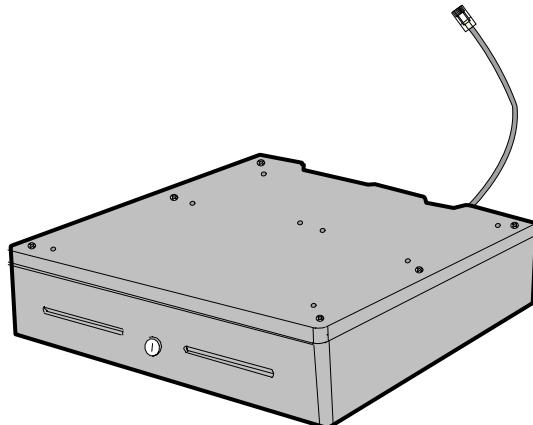
- 9600 baud
- 8 data bits
- 1 start bit
- No parity
- 1 stop bit
- Half-Duplex

Installing a Cash Drawer

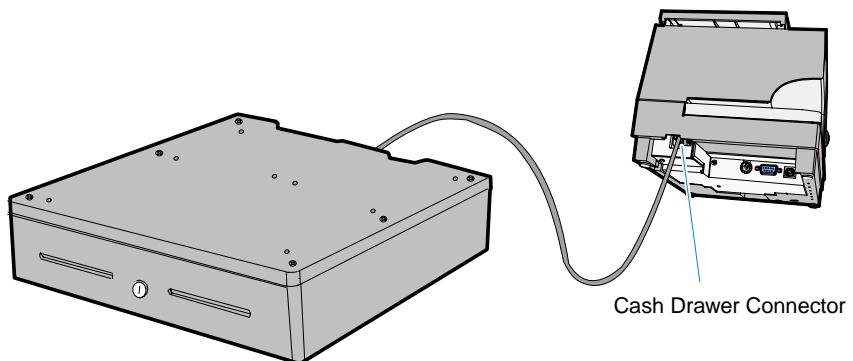
The Cash Drawer can be connected to the Cash Drawer connector or to the transaction printer.



Cash Drawer Connector



24137



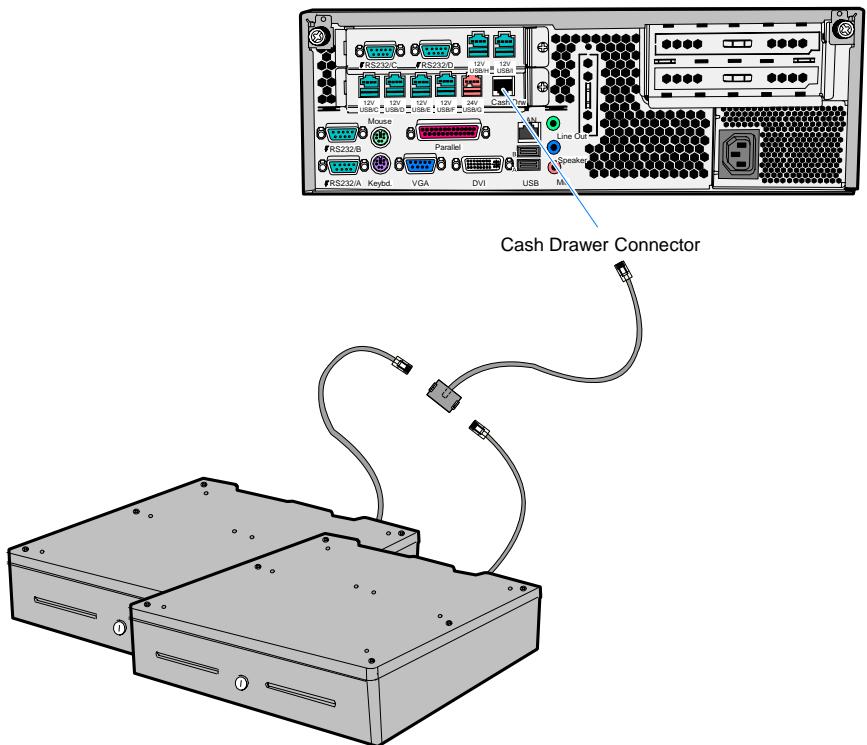
Cash Drawer Connector

20440

Installing a Second Cash Drawer

The terminal supports a 2-drawer configuration with a Y-cable (1416-C372-0006).

1. Place the cash drawer in the desired location, within cable's length of the printer.
2. Connect the Y-cable to the terminal or transaction printer cash drawer connector.



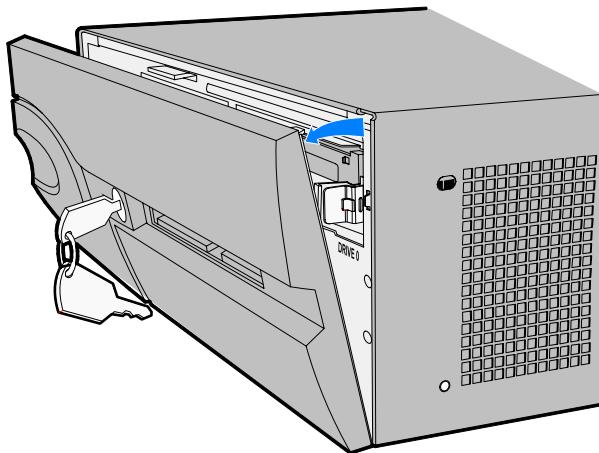
Replacing the Primary Hard Drive

The Hard Drive is front accessible from behind the Front Cover.

1. Turn Off the power to the terminal and any connected peripheral devices. Unplug the terminal's power cord.
2. Remove the Front Cover.

Modular Terminal

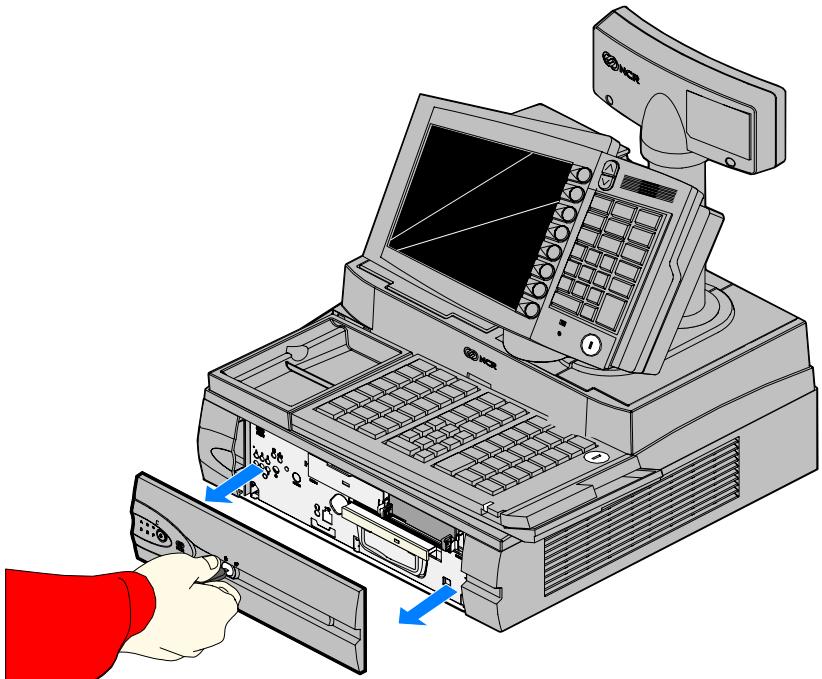
- a. Turn the Keylock to the unlocked position.
- b. Pull the top edge of the Front Cover away from the chassis and remove the cover.



23944

Integrated Terminal

- a. Turn the Keylock to the unlocked position.
- b. Grasp the key and pull straight out to remove the Front Cover.

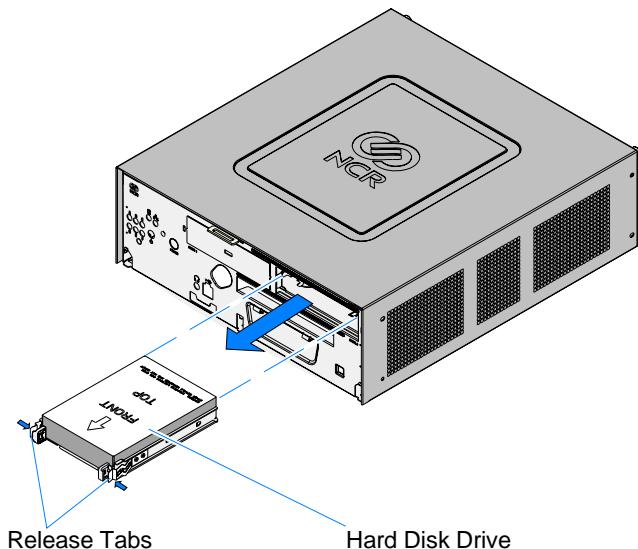


25491

Removing the Front Cover (Integrated Configuration)

Removing the Disk Drive

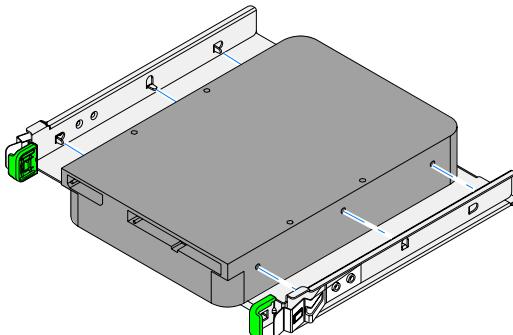
3. Squeeze the Release Tabs on the Hard Drive Bracket and then pull the drive assembly out of the chassis.



24107

Replacing the Disk Drive

4. Slide the Right and Left Hard Drive Brackets apart.
5. Align the extensions in the brackets with the screw holes in the new drive and slide the brackets together.



24109

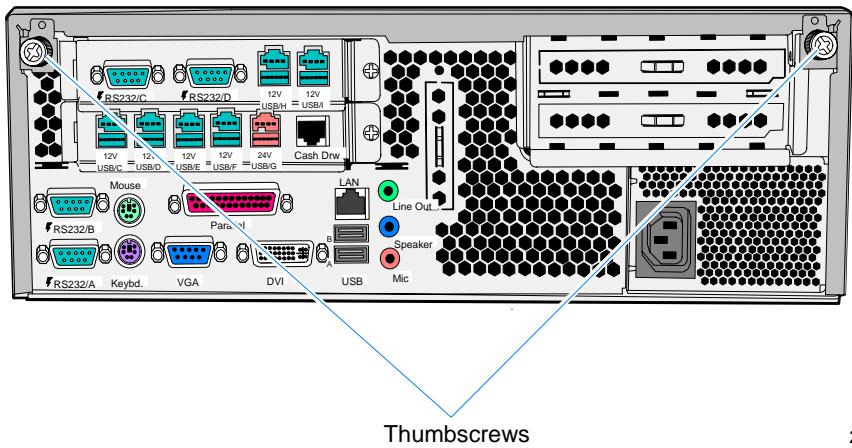
Installing a PCI Adapter Card

This section describes how to open the cabinet and install a PCI card.

Caution: Static Electricity Discharge may permanently damage your system. Discharge any static electricity build up in your body by touching your computer's case for a few seconds. Avoid any contact with internal parts and handle cards only by their external edges.

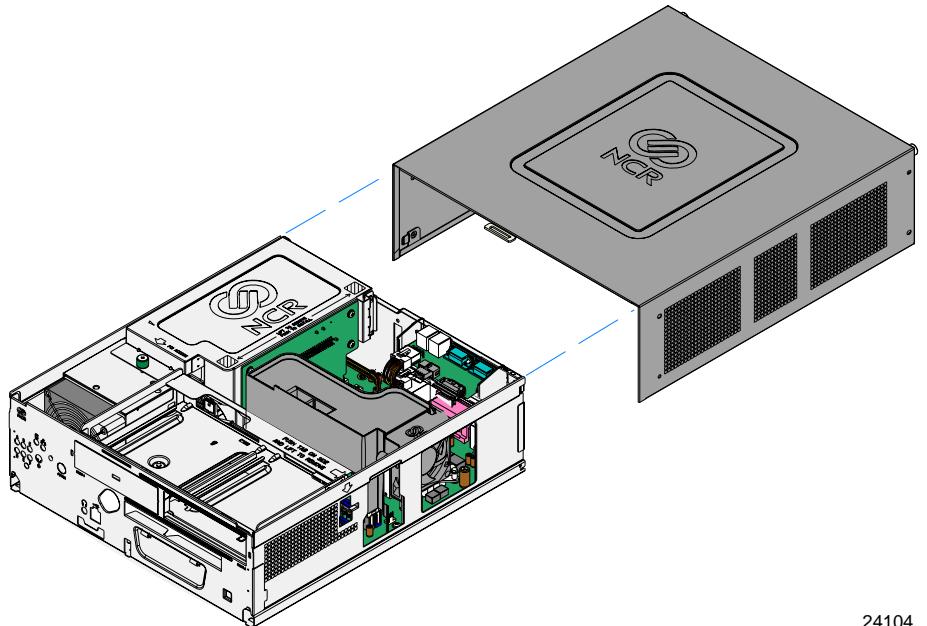
Removing the Top Cover

1. Remove the Front Cover (see previous section).
2. Loosen the thumbscrews (2) that secure the Top Cover.



24141

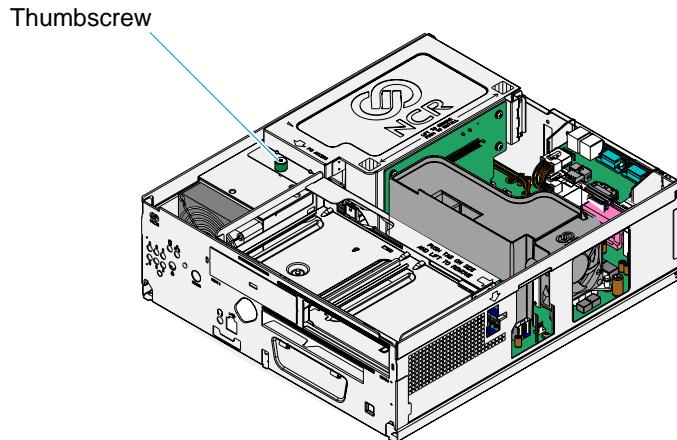
3. Slide the cover toward the rear of the terminal to remove.



24104

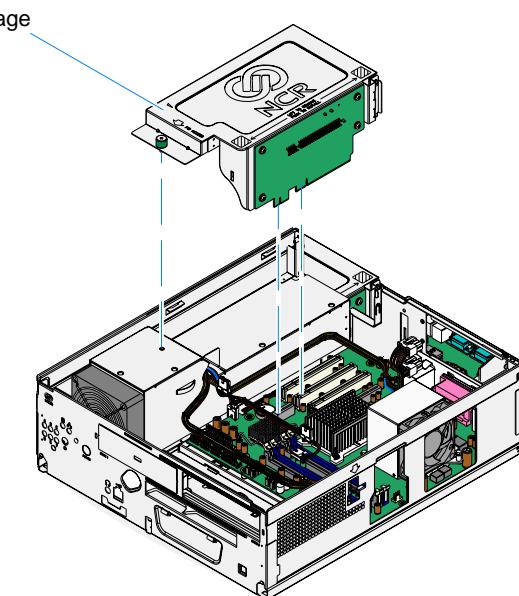
Installing the PCI Adapter Card

4. Loosen the thumbscrew that secures the PCI Adapter Cage.



24150

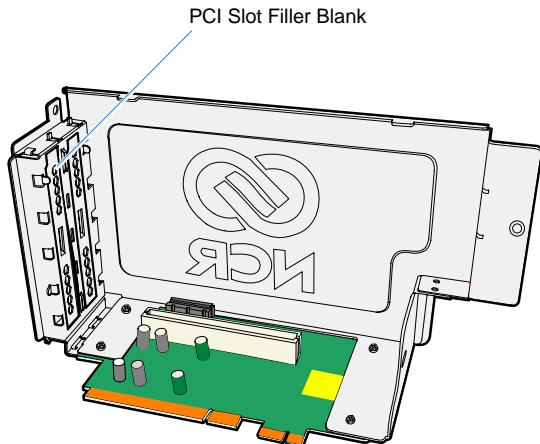
5. Disconnect the PCI Cage from the Motherboard.



24099

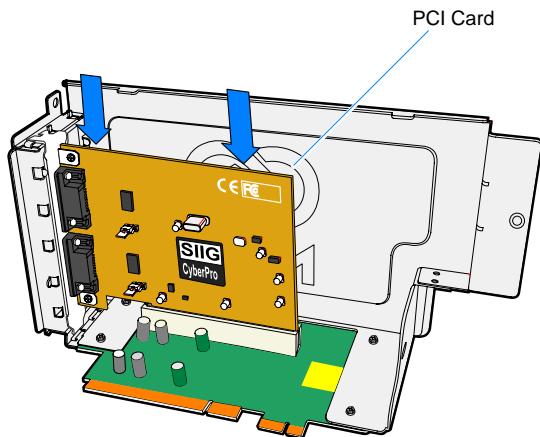
6. Use a screwdriver to twist out the lower PCI Slot Filler Blank.

Note: The upper slot is a PCI Express x1 interface, which is currently not used.



24148

7. Install the PCI Adapter Card in the PCI Riser Card socket.



24149

8. Re-install the PCI Cage into the chassis.
9. Re-install the Top Cover.
10. Re-install the Front Cover.

The Intel Matrix Storage Manager (RAID)

The Intel® Matrix Storage Technology provides new levels of protection, performance, and upgradeability for the 7459 platform. Whether using one or two hard drives you can take advantage of enhanced performance and lower power consumption. When using two drives you can have additional protection against data loss in the event of hard drive failure.

Valuable digital memories are protected against a hard drive failure when the system is configured for one of the fault-tolerant RAID levels: RAID 1 or 5. By seamlessly storing copies of data on one or more additional hard drives, any hard drive can fail without data loss or system downtime. When the failed drive is removed and a replacement hard drive is installed, data fault tolerance is easily restored.

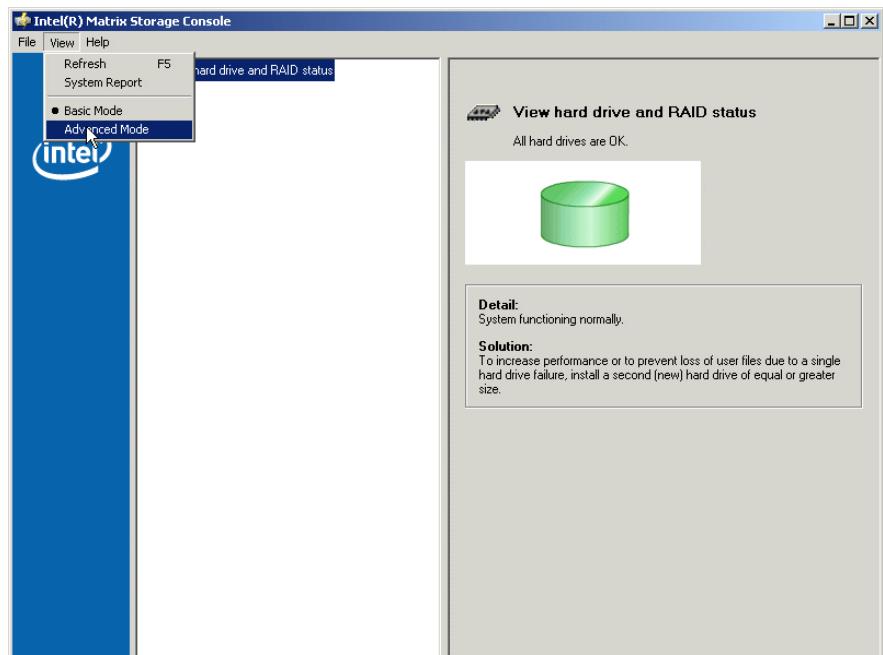
Installing a Second HDD w/RAID

1. Install a second hard disk drive in the terminal using the 2nd Hard Disk Drive Kit (7459-K260). This kit contains an 80GB SATA hard disk drive, HDD brackets, a SATA board, and a SATA cable.
2. Power up the terminal.
3. Run the Matrix Storage Manager.

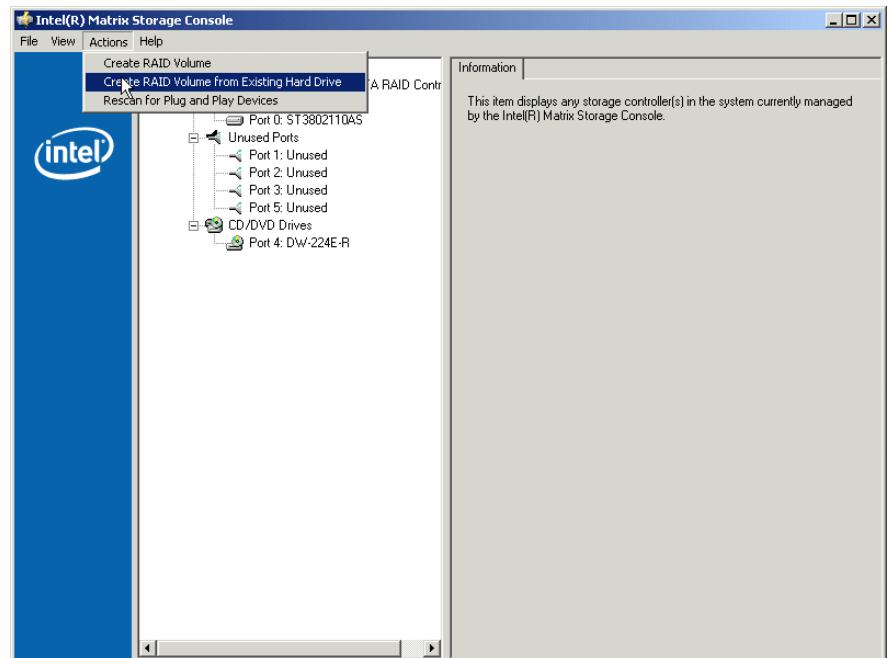
Start → All Programs → Intel(R) Matrix Storage Manager

Installing a Second HDD w/RAID

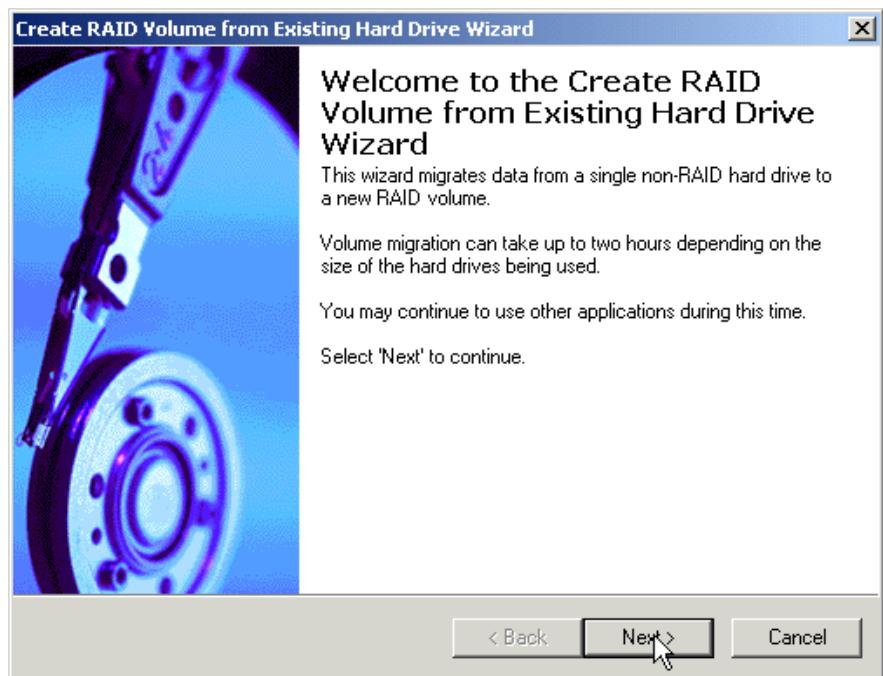
1. Install a second hard disk drive in the terminal using the 2nd Hard Disk Drive Kit (7459-K260). This kit contains an 80GB SATA hard disk drive, HDD brackets, a SATA board, and a SATA cable.
2. Power up the terminal.
3. Run the Matrix Storage Manager.
Start → All Programs → Intel(R) Matrix Storage Manager
4. From the *View* menu select **Advanced Mode**.



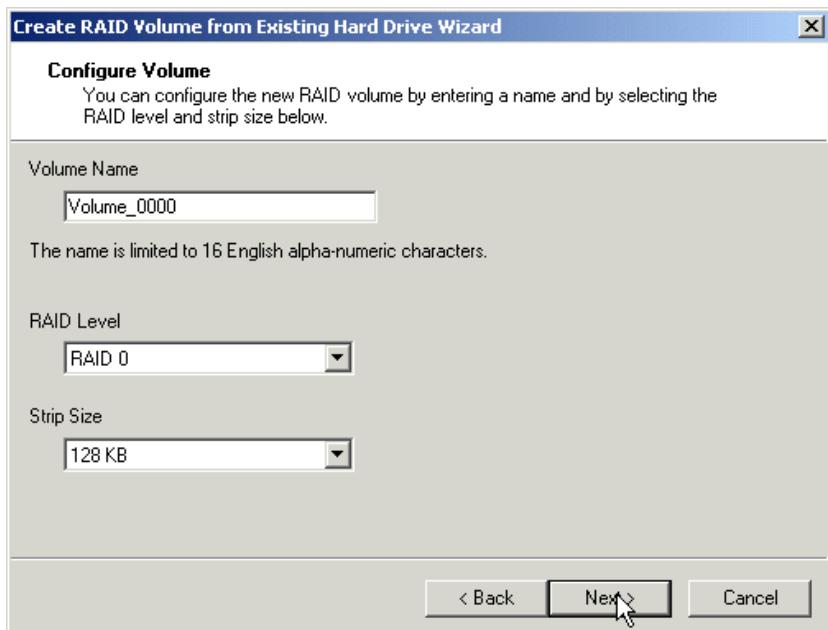
5. From the *Actions* menu select **Create RAID volume from Existing Hard drive**.



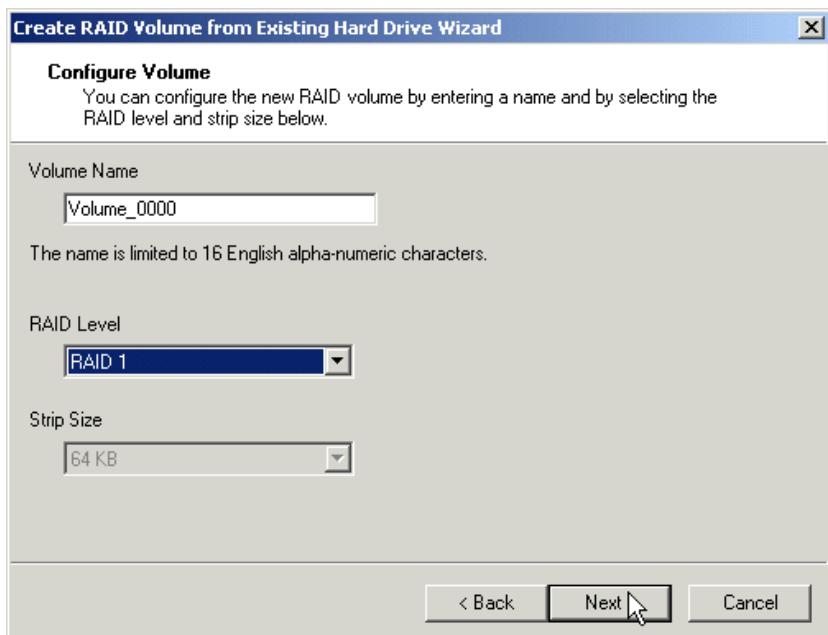
6. Select **Next** at the Welcome screen.



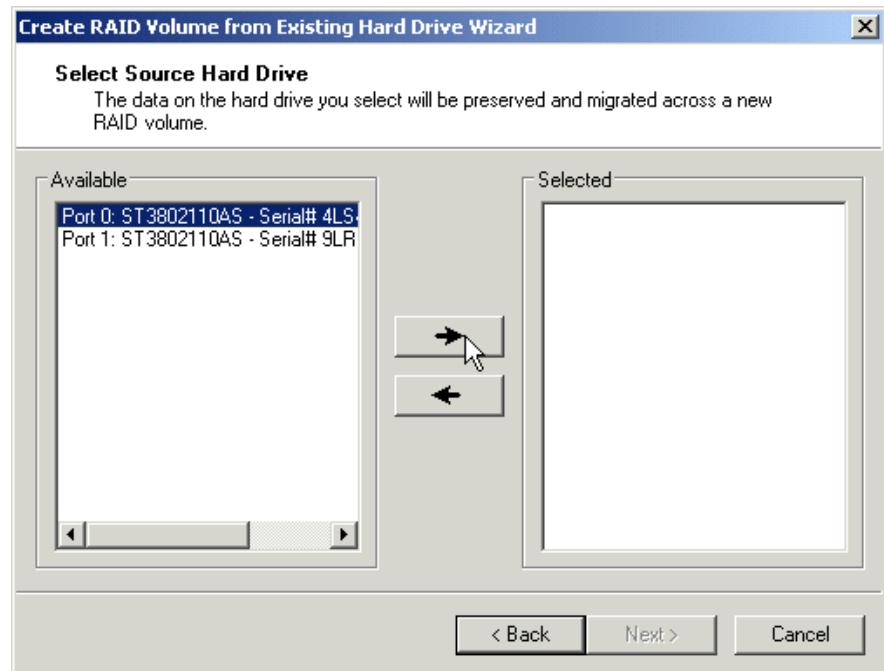
7. Enter a Volume Name (user preference).
8. Select the type of RAID volume you want to install. NCR supports RAID 0 and RAID 1 volume types.
 - RAID 0: Striped Set without parity: provides improved performance and additional storage but no fault tolerance from disk errors or disk failure. Any disk failure destroys the array. Select the Strip Size you want to use. Select **RAID 0** and the Strip Size from the drop-down menus.



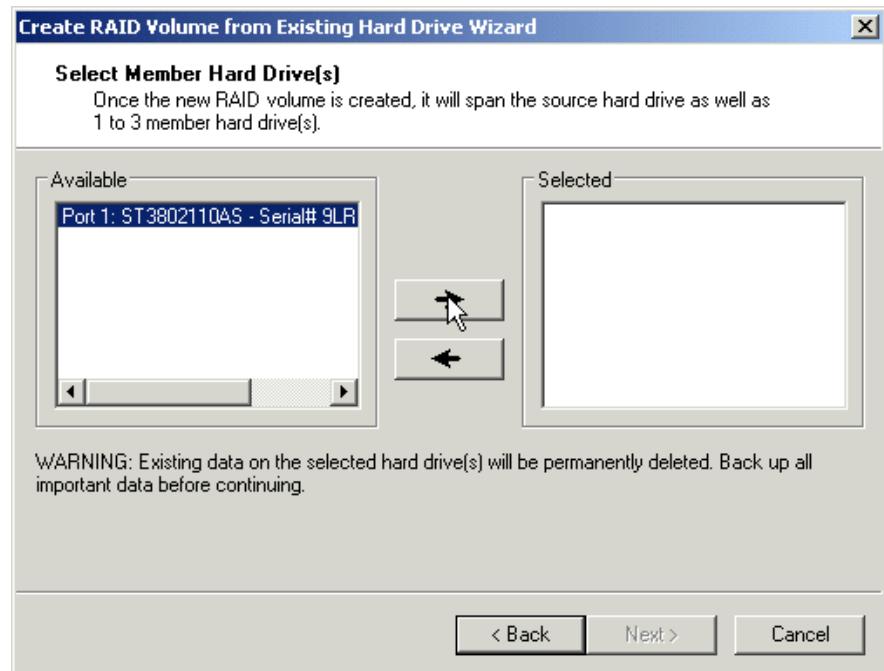
- RAID 1: Mirrored Set without parity: provides fault tolerance from disk errors and single disk failure. Increased read performance occurs when using a multi-threaded operating system that supports split seeks, very small performance reduction when writing. Array continues to operate with one failed drive. Select **RAID 1** from the drop-down menu.



9. Select the correct *Source* drive from the list of available drives and move it to the right side window using the arrow button. Select **Next**.

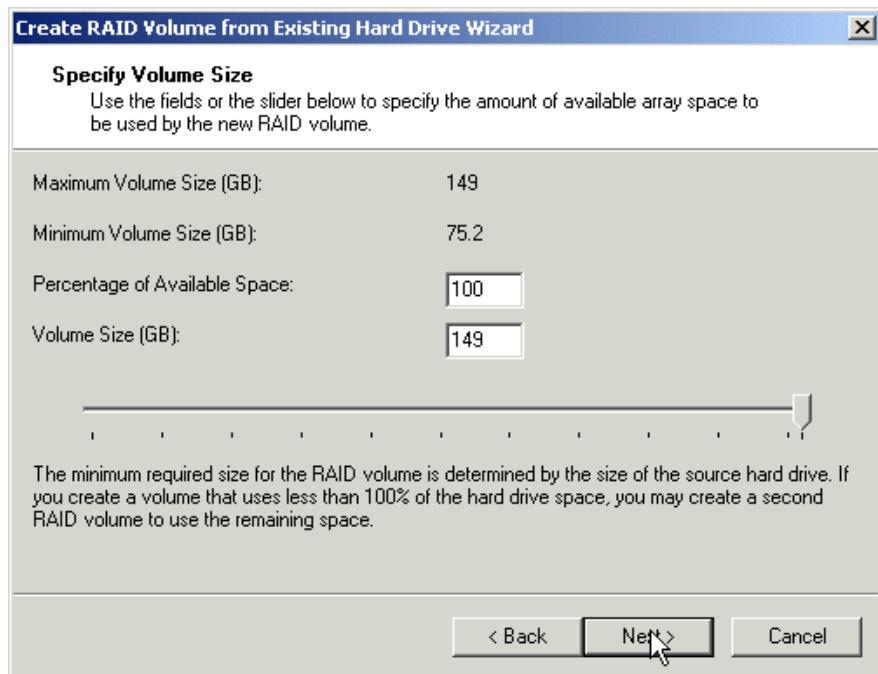


10. Select the correct *Member* drive from the list of available drives and move it to the right side window using the arrow button. Select **Next**.

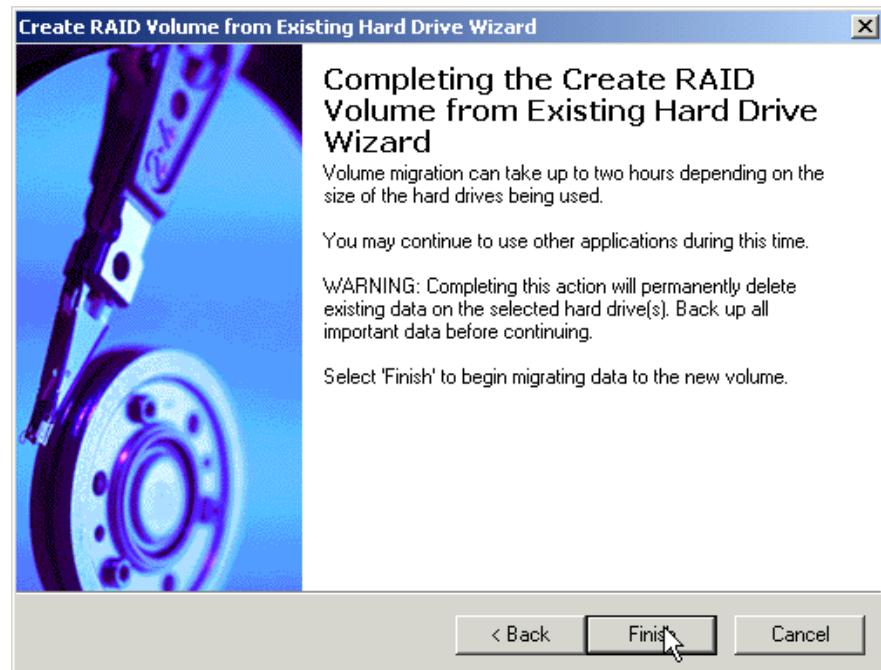


11. **RAID 0 Only:** Specify the amount of available space to be used by the new RAID volume. You can use the slider to do this, or you enter a percentage of disk space or the size in GB in the fields.

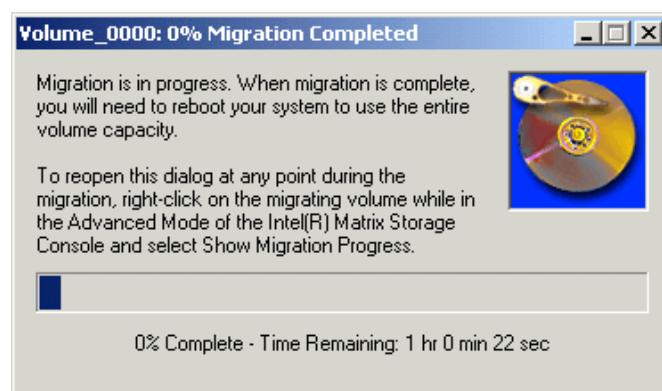
Note: The minimum required size for the RAID volume is determined by the size of the source hard drive. If you create a volume that uses less than 100% of the hard drive space, you may create a second RAID volume to use the remaining space.



12. Select **Next** to start the volume migration. This can take 1 – 3 hours to complete.



13. A progress bar is displayed as the RAID volume is created.

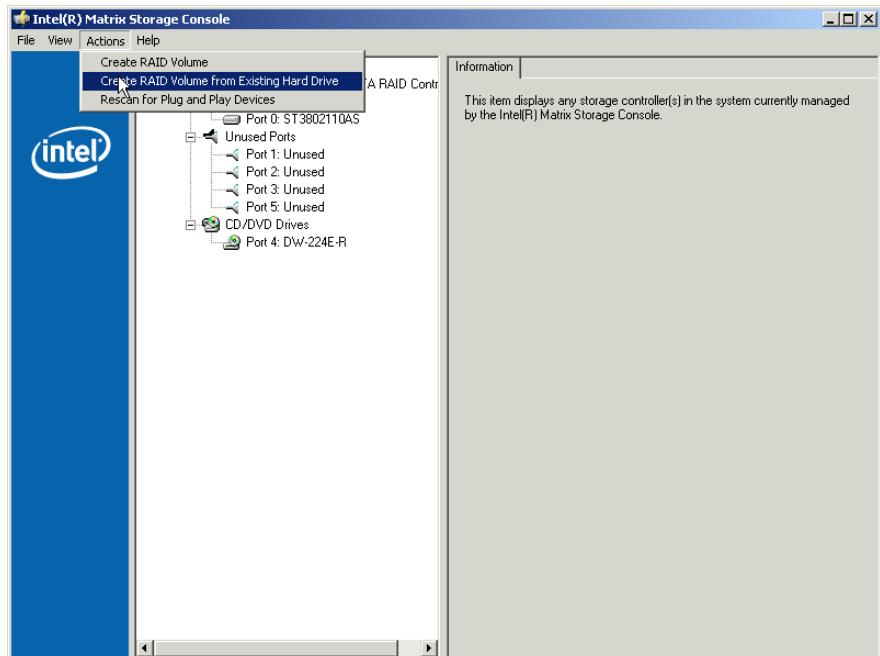


Note: If the above progress screen gets deleted you can monitor the status from the Basic Mode in the Matrix Storage Manager.

Replacing a Failed RAID 1 (Mirrored) HDD

If a hard drives fails the Matrix software detects the failure and displays a *RAID Volume Degraded* warning message.

1. Click on the message icon to determine which drive failed. This opens the Matrix Storage Manager and displays the drive statuses.
2. Replace the defective HDD.
3. From the *Actions* menu select **Rescan for Plug and Play Devices**.
The software detects the new HDD and then rebuilds the RAID volume.

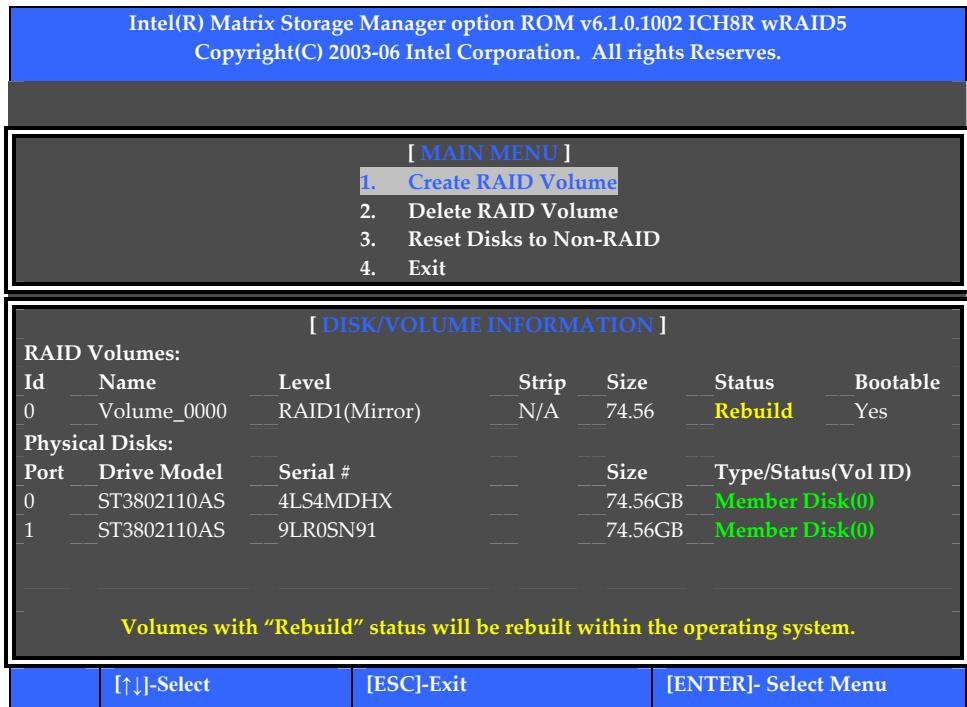


RAID Option ROM

The Intel RAID Option ROM provides a pre-operating system user interface for configuring Intel® RAID Technology. It is integrated with the system BIOS on the motherboard. The Intel RAID option ROM is enabled when the Intel RAID Technology is enabled in the system BIOS setup. The Option ROM is used to manage your RAID volumes. You can create, delete, or reset them to a different status.

To enter the Option ROM manager press **CTRL-I** during boot when you see the Disk/Volume information displayed.

The Option ROM menu is displayed, showing the current disk configuration. The example below shows two disk system with a RAID1 (Mirror) volume installed.

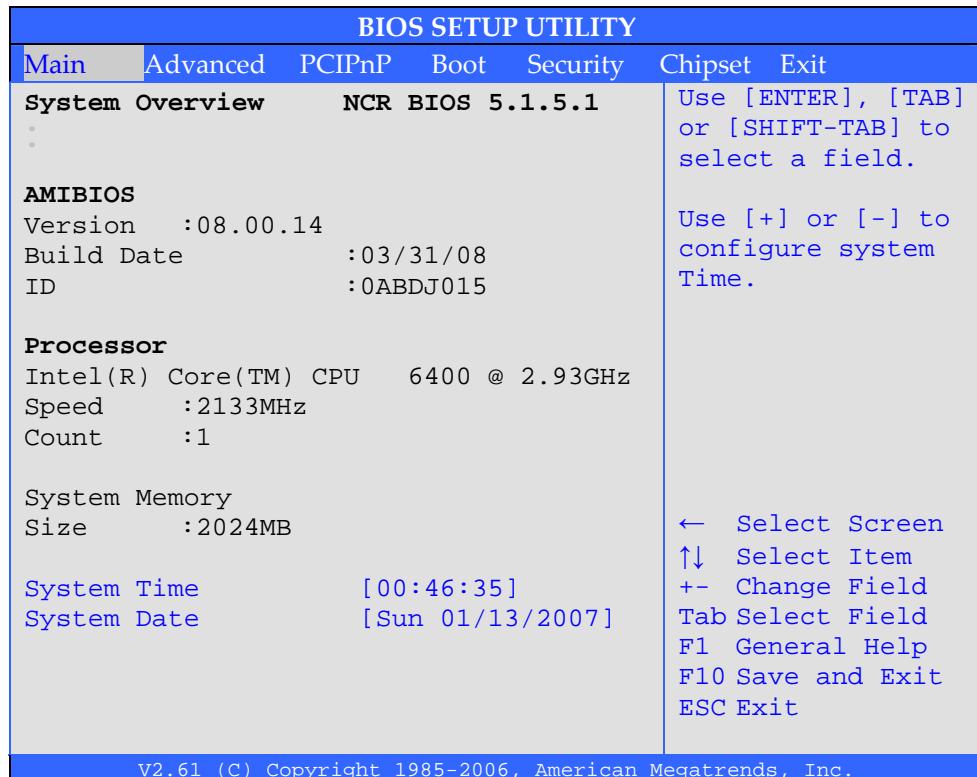


Chapter 3: Configuring AMT

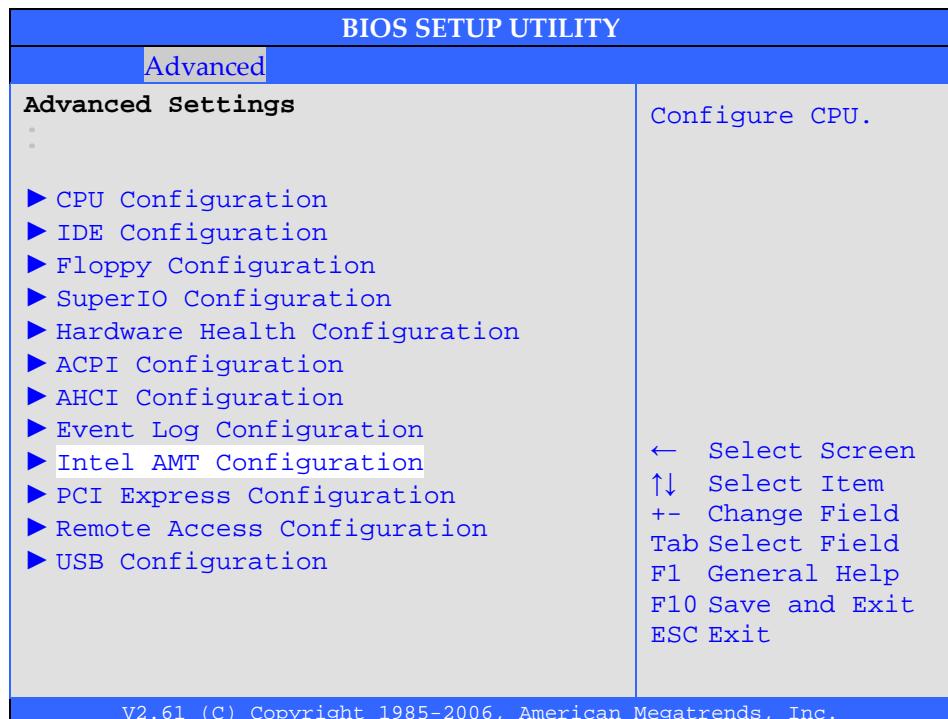
This chapter explains how to configure an NCR RealPOS 80XRT so it can be accessed remotely using Intel Management Technology (AMT).

Configuring the 7459 Terminal

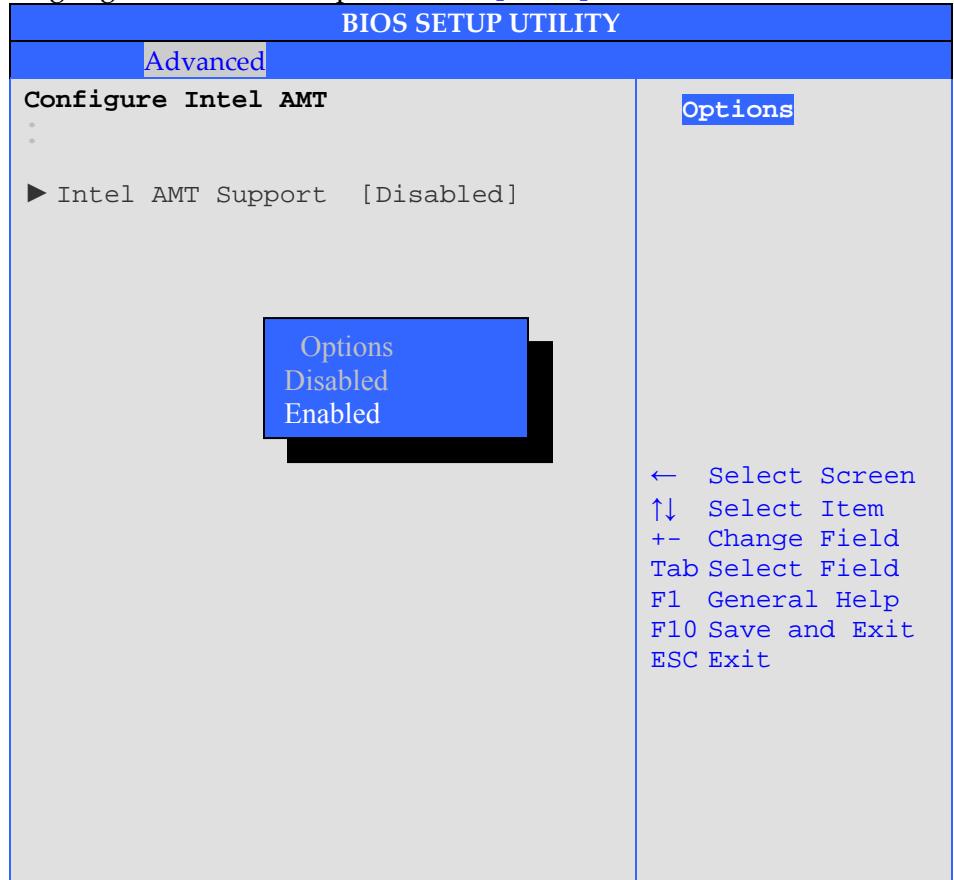
1. Re-boot the terminal.
2. When you see the message Press DEL to enter setup press **[Del]** to start the utility.



3. Under the *Advanced* tab, select **Intel AMT Configuration** and press **[Enter]**.

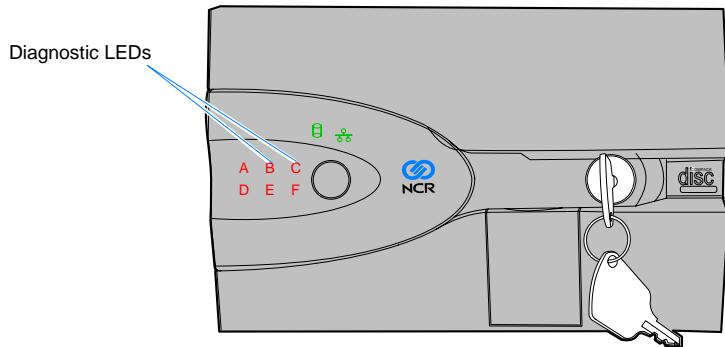


4. Enable Intel AMT Support. Press [Enter] and then arrow down to highlight the **Enabled** option. Press [Enter].



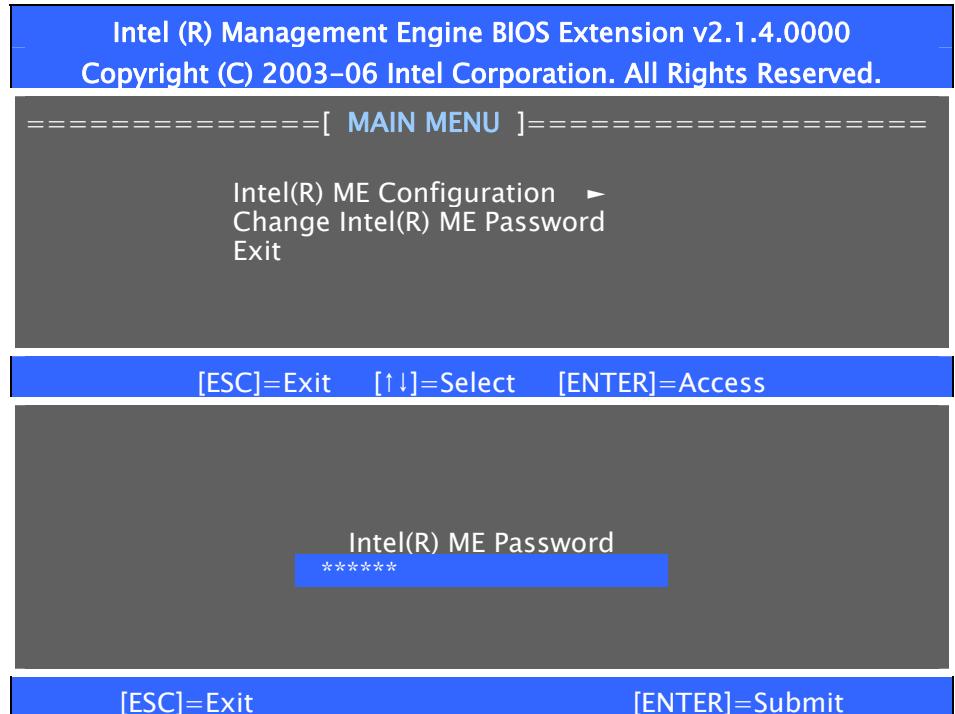
5. Press **F10** and **[Enter]** to *Save and Exit*.

6. During re-boot watch for the *B* and *C* front panel Diagnostic LEDs to turn off. At that moment press **Ctrl-P**.

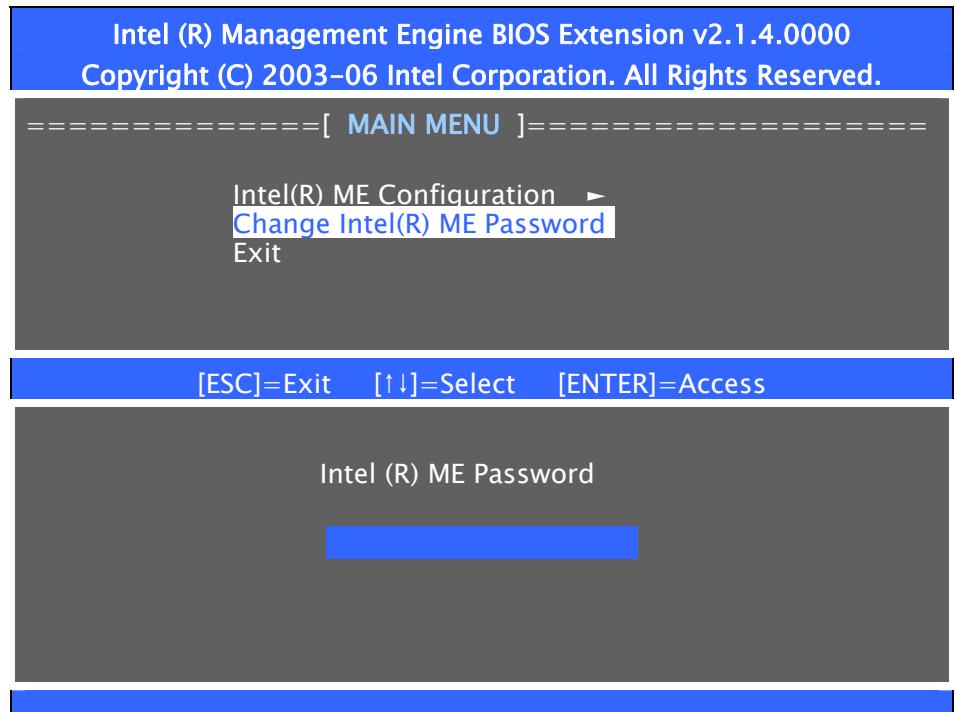


24809

7. The Intel ® Management BIOS Extension is displayed. The first time this program is entered you must use the default password. Enter the default Intel ME Password (*admin* in all lower case) and press **[Enter]**.



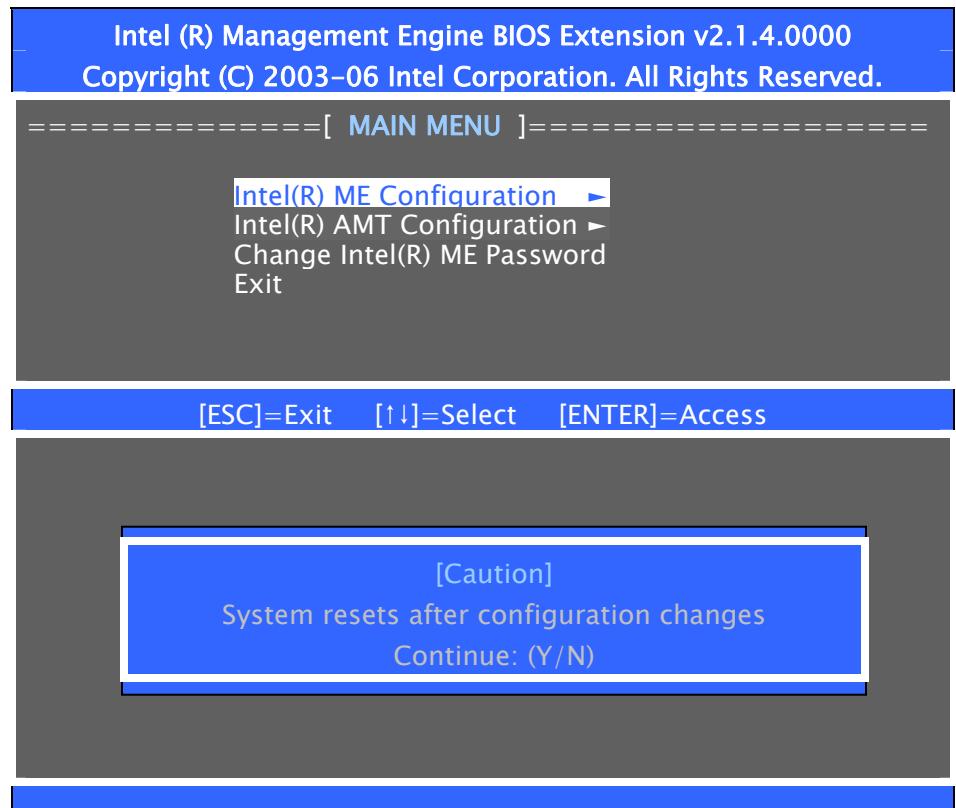
8. Change the default password to something of your choosing.
Highlight *Change Intel ME Password* and press **[Enter]**.



9. Enter the new password (write it down to remember). The password must contain *upper, lower, symbol, & numeric* characters.
Example: Ncr@2008

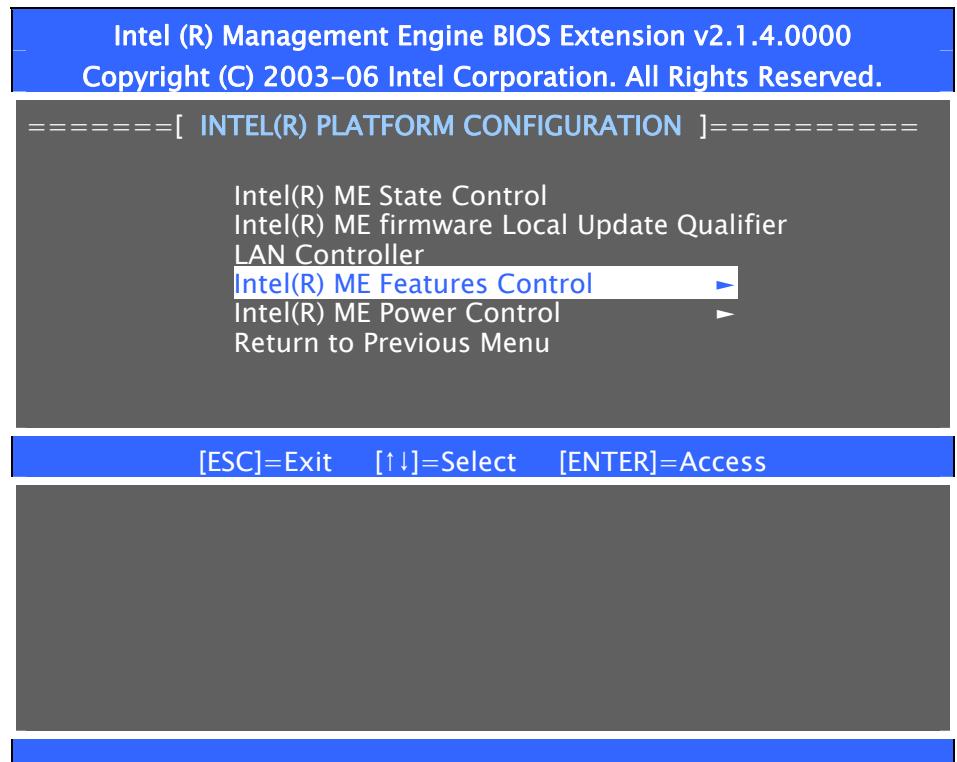
You must enter the password twice for verification.

10. Highlight *Intel(R) ME Configuration* and press **[Enter]**.

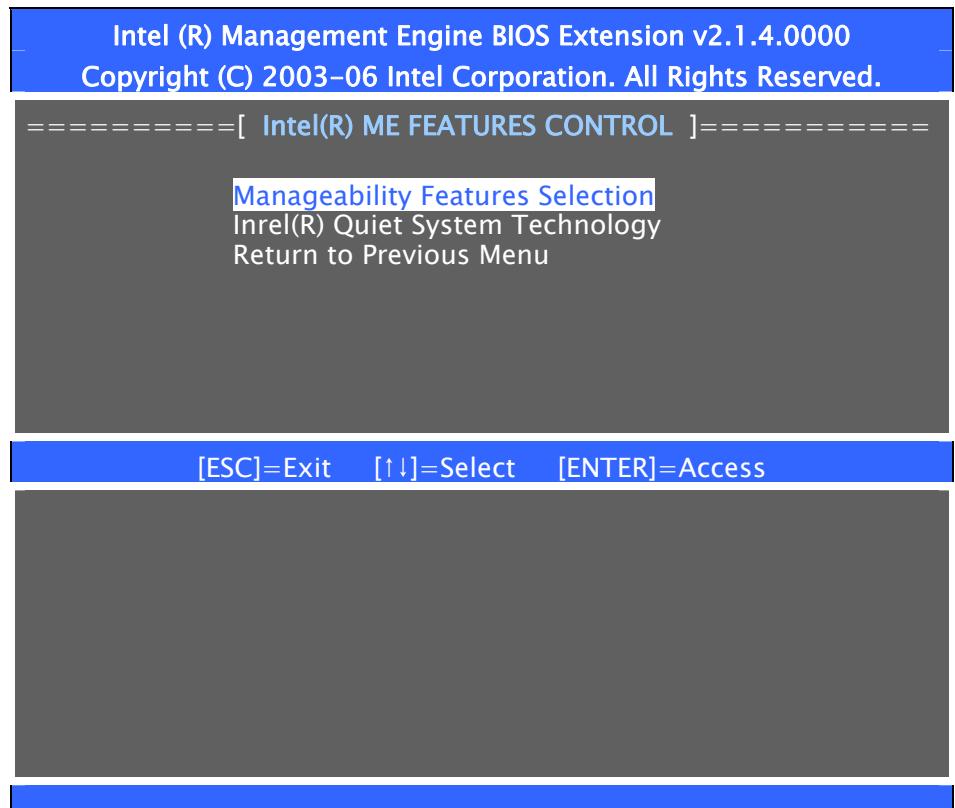


11. Enter **Y** at the warning message to continue.

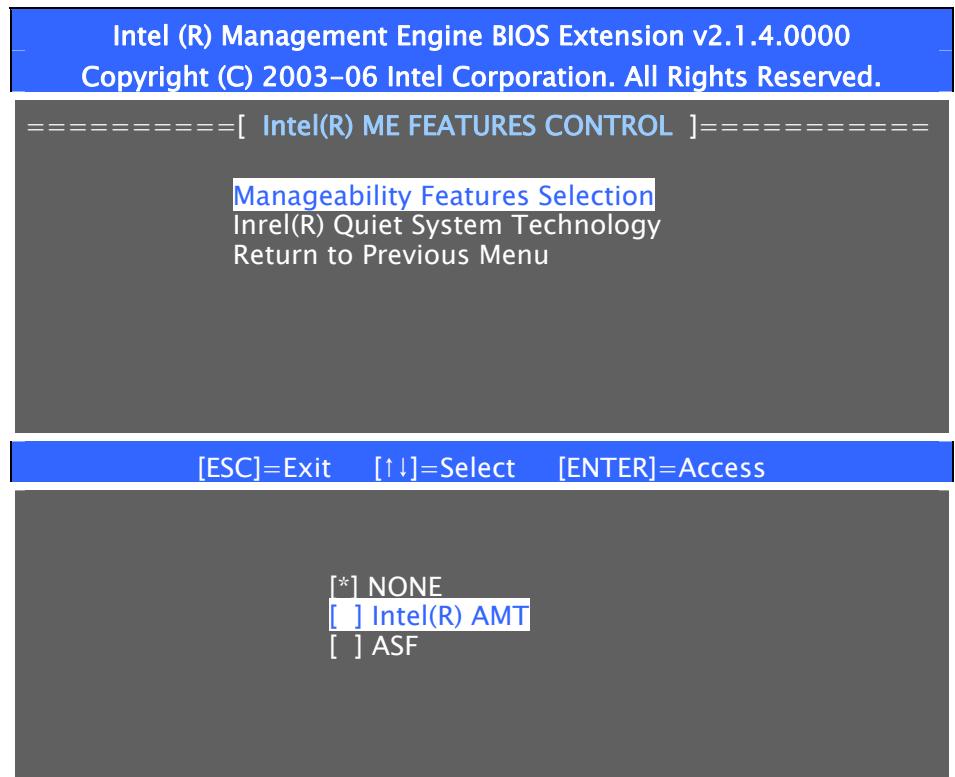
12. Highlight *Intel(R) ME Features Control* and press **[Enter]**.



13. Highlight *Manageability Feature Selection* and press **[Enter]**.

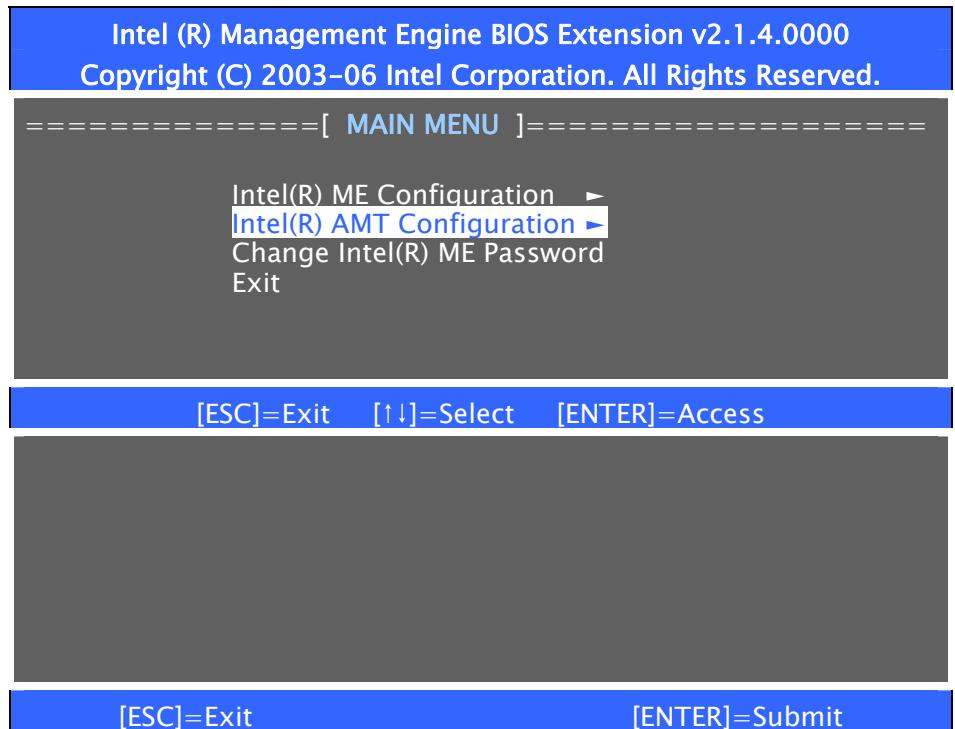


14. Highlight *Intel(R) AMT* and press **[Enter]**.

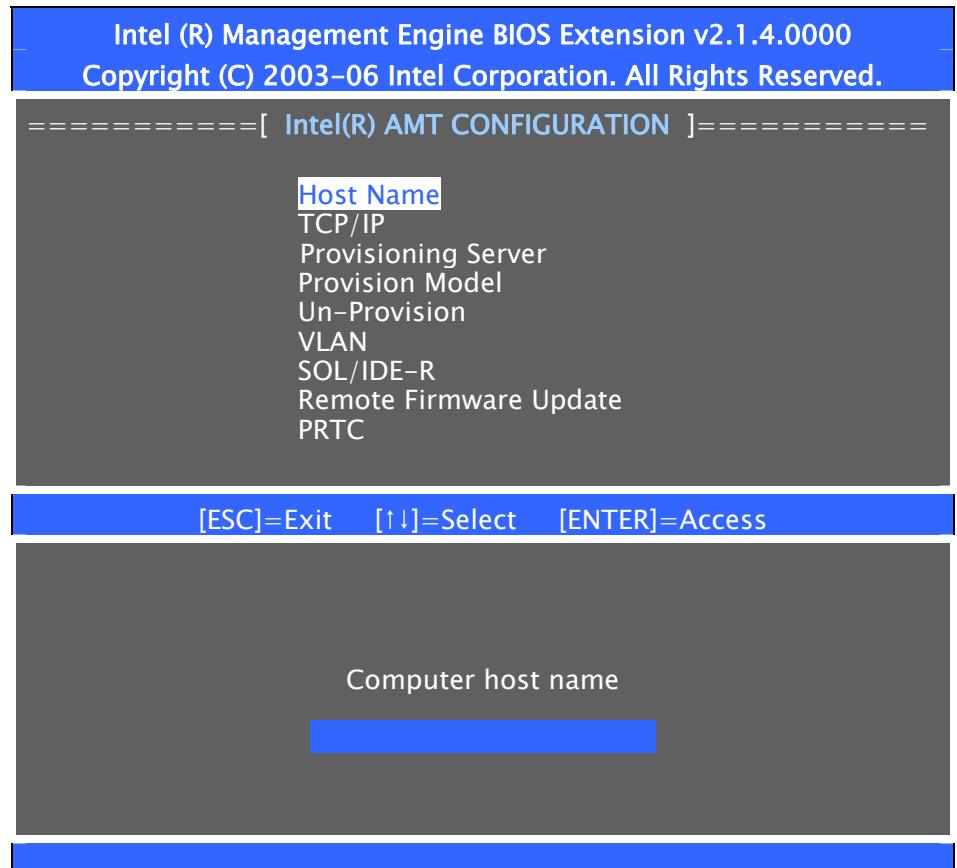


15. Highlight *Return to Previous Menu* and press **[Enter]**.
16. Again, highlight *Return to Previous Menu* and press **[Enter]** to exit the program.
17. Highlight *Exit* and press **[Enter]**
18. Log back into the Intel(R) Management Engine.
 - a. As previous, during re-boot watch for the *B* and *C* front panel Diagnostic LEDs to turn off and at that moment press **Ctrl-P**.
 - b. Enter the password and press **[Enter]**.

19. At the Main Menu highlight *Intel(R) AMT Configuration* and press [Enter].



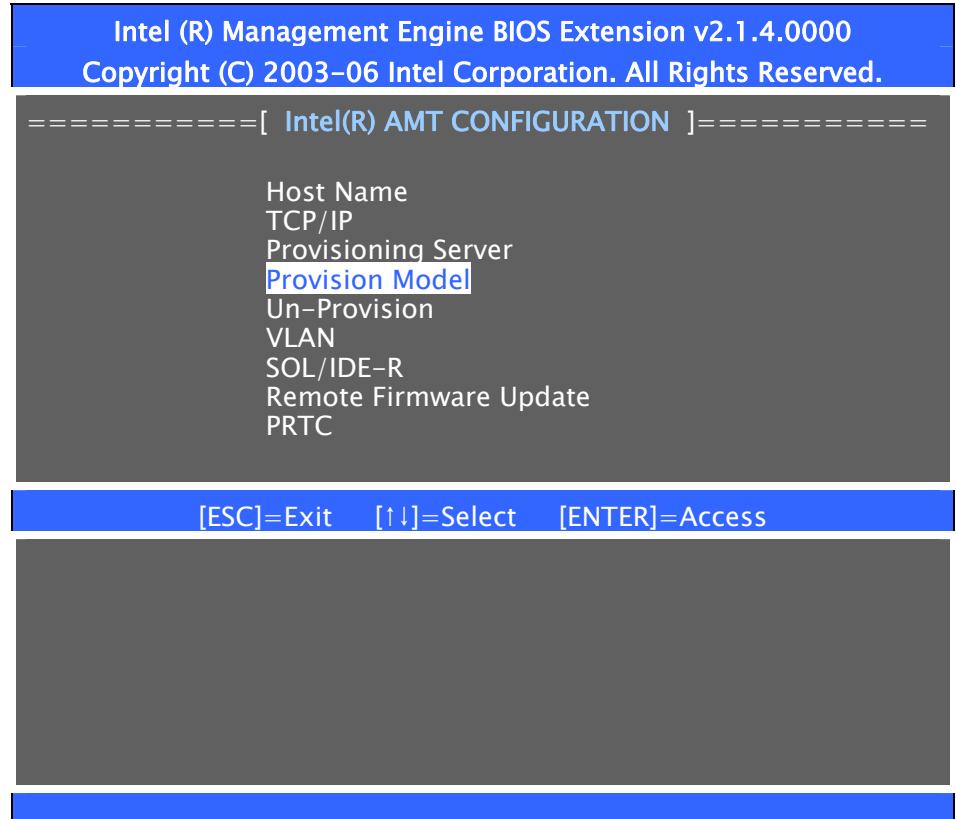
20. Highlight *Host Name* and press **[Enter]**.



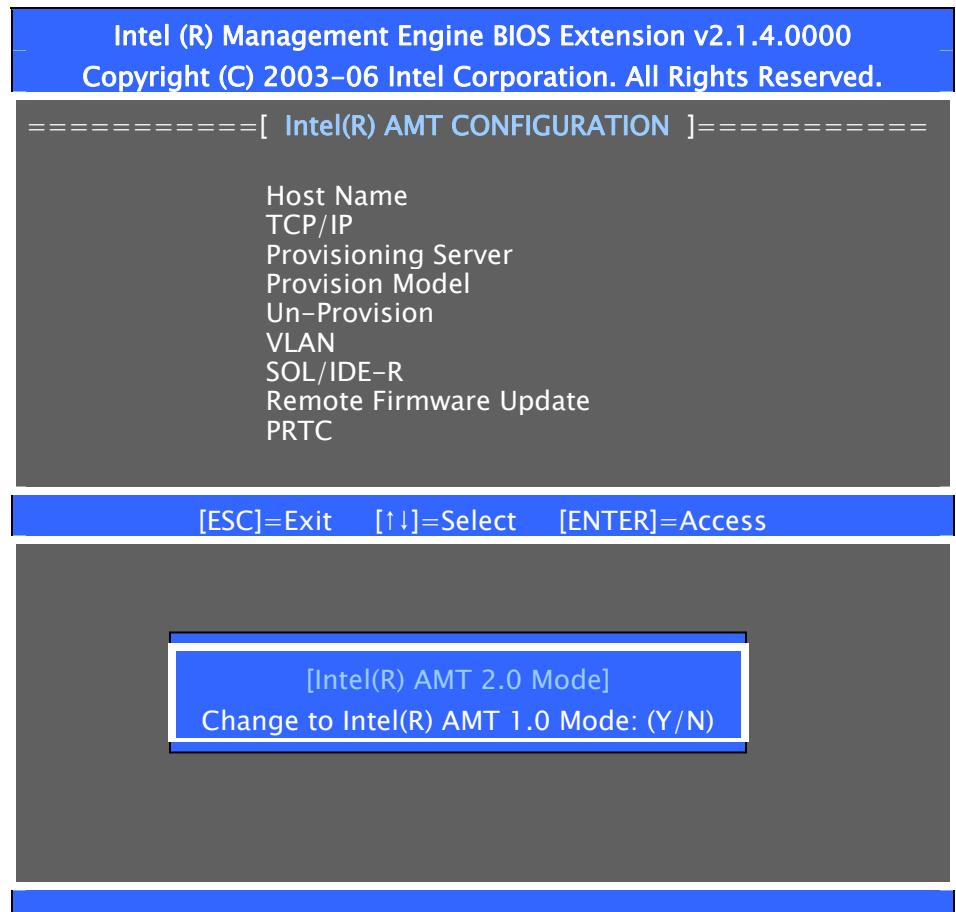
21. Enter a *Host Name* for this terminal (your choice) and press **[Enter]**.

Example: POS21

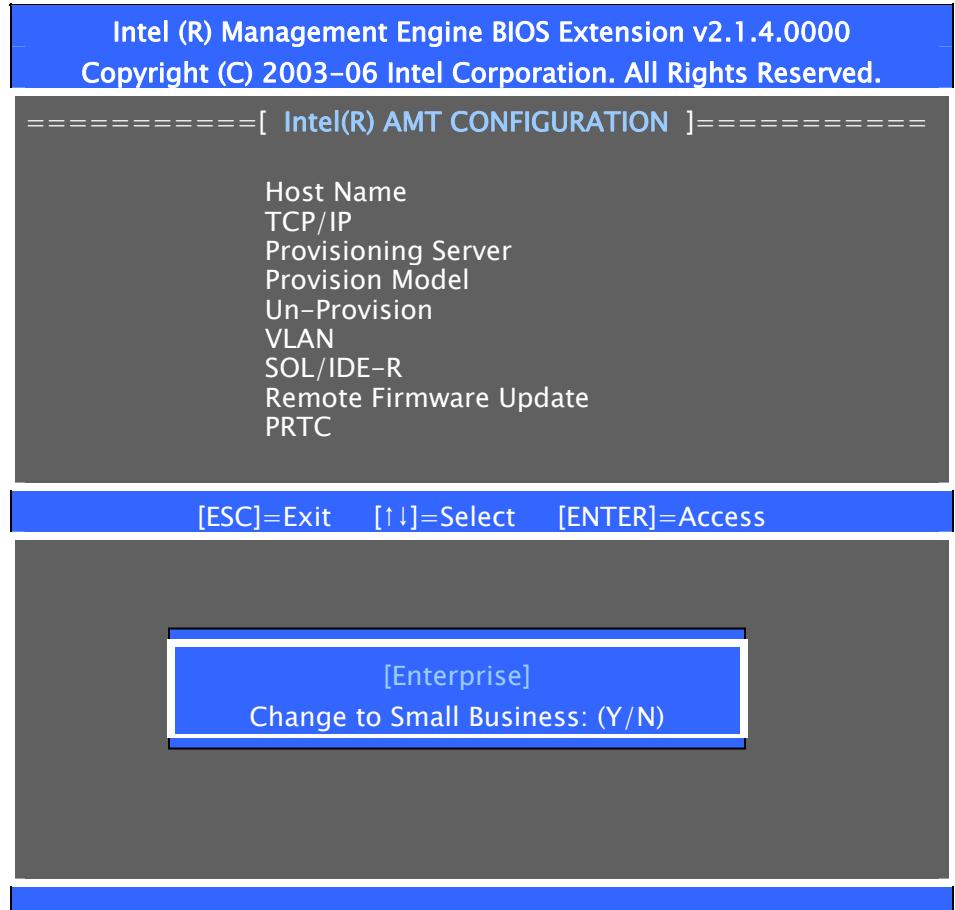
22. Verify that the Provision Model is set to *Small Business*. If it is set to the default setting (*Enterprise*) you will not have access to the web - based interface. Highlight *Provision Model* and press [Enter].



23. Enter **N** at the request to change to Mode 1.0.



24. The next pop up window indicates whether your Provision Model is set as *Small Business* or *Enterprise*. Set the mode to **Small Business**, if necessary.



25. Press **[ESC] [ESC]** to exit.
26. The terminal reboots and is now ready to be accessed via a browser from a PC on the network.

Logging onto the 7459 Terminal Using AMT

After configuring the 7459 you should now be able to log into it from a browser on a remote PC.

1. Determine the target 7459's IP address.

Windows:

Start → All Programs → Accessories → Command Prompt

Enter **ipconfig** and press **[Enter]**. The IP address is displayed.

Linux:

Switch Focus to the *Instructions* window.

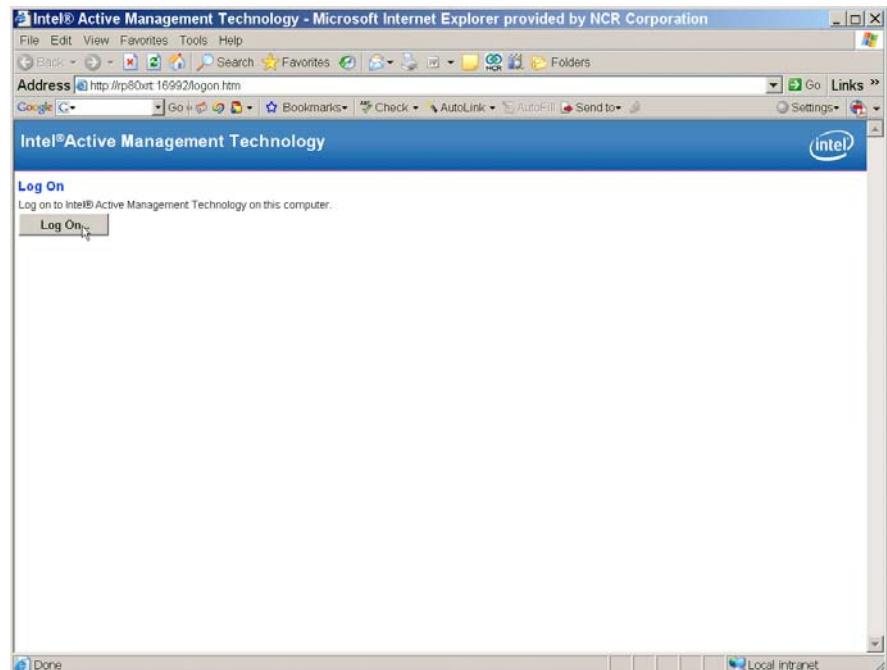
Enter **ipconfig** and press **[Enter]**. The IP address (Inet adder) is displayed.

2. Open the browser on the PC.
3. Enter the IP address in the Address line. Include the 16992 port.

`http://<IP Address>:16992`

Note: The 16992 port number is fixed and cannot be changed.

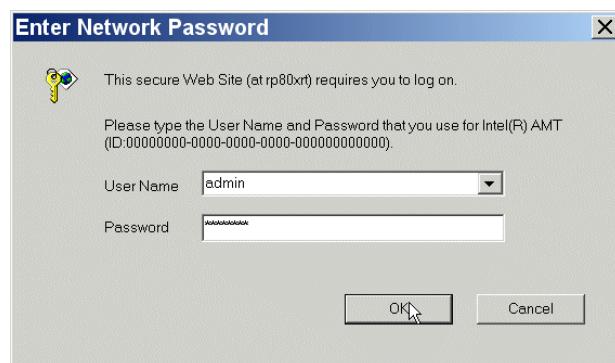
4. The AMT logon screen will appear if you are successful. Select the **Log On** button to log onto the terminal.



5. Enter the *UserName* and *Password* and then select **OK**.

UserName: admin

Password: <your password>



The System Status Screen is displayed. You can now control the AMT functions.

The screenshot shows a Microsoft Internet Explorer window titled "Intel® Active Management Technology - Microsoft Internet Explorer provided by NCR Corporation". The address bar shows the URL "http://ip80out:16992/index.htm". The main content area displays the "System Status" screen for the computer "RP10xt". The left sidebar lists navigation options: System Status, Hardware Information (System, Processor, Memory, Disk), Event Log, Remote Control, Network Settings, User Accounts, and Update Firmware. The right panel shows the "System Status" table with the following data:

Power	On
IP address	153.80.8.75
System ID	20524346-0000-0000-0000-054038582202
Date	7/9/2007
Time	11:19 am

A "Refresh" button is located at the bottom of the table. At the very bottom of the page, a small copyright notice reads: "Copyright © 2005, 2006 Intel Corp. Intel Active Management Technology/Firmware Version 2.1.3 Build 1031".

Chapter 4: BIOS Setup

Entering Setup

1. Apply power to the terminal.
2. When you see the NCR logo displayed press **[Del]**.

How to Select Menu Options

The following keyboard controls are used to select the various menu options and to make changes to their values.

- Use the arrow keys to select (highlight) options and menu screens.
- Use the **[Enter]** key to select a submenu.
- Use the **[+]** and **[-]** keys to change field values.
- To view help information on the possible selections for the highlighted item, press **[F1]**.
- To save the changes, move the cursor to the *Exit Menu*, select either *Save Changes & Exit* or *Save Changes*, and press **[Enter]**.

Restoring Factory Settings

To reset all values to their default settings for the **current screen**, press **[F9]**. The terminal automatically loads the BIOS default values. To reset **all** BIOS settings to their default settings go to the *Exit* menu, press F9, select either *Save Changes & Exit* or *Save Changes*, and press **[Enter]**.

See the *BIOS Default Settings* sections later in this chapter for the pre-installed Setup defaults.

Special DynaKey Keypad Mode

If your Terminal is configured with a DynaKey or Touch Screen module refer to the following sections that discuss special keypad considerations. Otherwise, proceed to the **Configuration Setup Procedures** section.

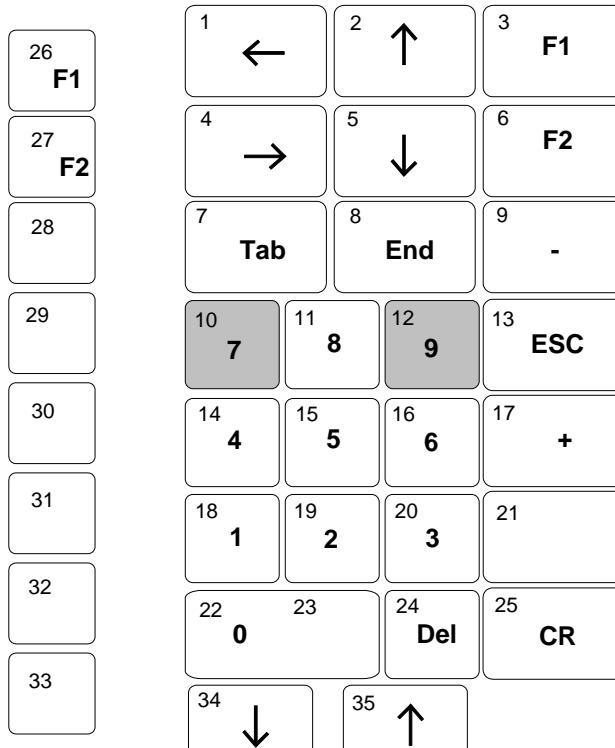
Many of the Terminal setup routines require keys that are not present in the regular DynaKey keypad layout (such as the ESC and .0END keys). Although the DynaKey has a PC keyboard connector, a PC keyboard may not be readily available to the operator.

Note: No setup is required for the DynaKey module itself at installation unless the factory default configuration needs changing. The operational parameters can be changed using the *Wedge Configuration Utility* (G370-0701-0000) diskette or the *7452 Diagnostics and BIOS Images* (497-0406703) diskette.

To use the DynaKey without a PC keyboard attached to run the Terminal setup routines, you must place it in the Special DynaKey Keypad Mode. This mode replaces the normal keypad layout and function keys with special key assignments that are required to run setup. To enter the special mode, press the 7 and 9 keys simultaneously during POST diagnostics.

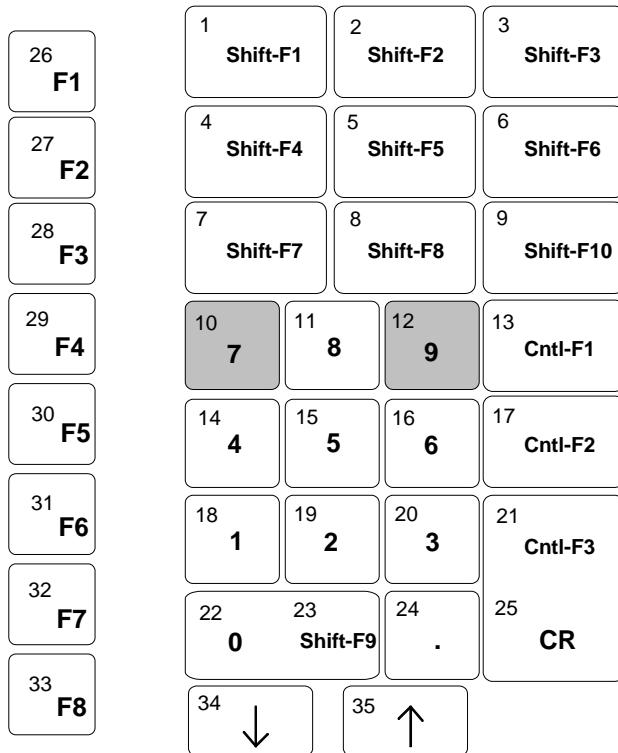
Note: The **7** and **9** keys must be the FIRST keys pressed during/after a power up, otherwise the keypad enters the normal layout.

The following key layout is active in the special mode.



Normal DynaKey Keypad Operating Mode

After running setup the DynaKey can be reset to the normal mode by rebooting or by pressing the 7 and 9 keys simultaneously. The normal keypad layout is shown below.



12389

Disabling Resources

Resources that are disabled in the BIOS (IRQs for COM ports/on-board LAN/secondary IDE) are still detected and installed (sometimes partially) in Windows. The resources are actually available.

Keyboard Shortcuts

Function	Keystroke	Notes
Enter SETUP	DEL	1
Load AMIBIOS “failsafe” CMOS SETUP values	END	
Display extra AMIBIOS information at boot	INS	8
Switch between AMIBIOS “Silent Boot” graphical logo and standard text boot screen	TAB	2, 6
Boot from Network Device	F12	1, 2
Enter SETUP after system error	F1	1
Load CMOS SETUP defaults after system error	F2	1
Initiate BIOS RECOVERY & clear CMOS	CTRL-HOME	7, 8
Initiate BIOS RECOVERY, clear CMOS & NVRAM	CTRL-PGUP	7, 8
Initiate BIOS RECOVERY, preserve CMOS & NVRAM	CTRL-PGDN	7
PopUp Boot Menu	F8 or F11*	1, 2, 3
Enter SETUP (for serial console redirection)	F4	1, 2, 3, 4
PopUp Boot Menu (for serial console redirection)	F3	1, 2, 3, 4
Activate AMIKey Recovery Boot Services	F9	1, 2, 5

Notes:

1. This keystroke can be configured to be a different value, based on the system manufacturer's specification. The keystroke listed here is the “default” setting in AMIBIOS8.
2. This feature is not enabled in all AMIBIOS products.
3. The assigned keystroke & a short description of its function is typically displayed by the BIOS on system startup.

4. These keystrokes are only available when using the AMIBIOS “serial console redirection”, which allows access to the BIOS boot screen via a VT-100/ANSI terminal connected to a serial port.
5. This feature is only available if AMIKey Recovery Boot Services are installed on the system drive and the BIOS is configured to use these services.
6. AMIBIOS will automatically switch from the “Silent Boot” logo to the standard BIOS text screen if an error occurs that requires user attention. Some error messages are displayed over the “Silent Boot” logo, depending on system configuration.
7. These BIOS functions are only available during the very early stages of system initialization, also known as “boot block code”. To initiate these functions, please hold down the keys immediately after powering on the system.
8. After AMIBIOS recognizes this keystroke, the BIOS will wait and display the following message: *Press <F1> to Run SETUP, Press <F2> to load default values and continue.*

BIOS Default Values

BIOS Version: 5.4.3.0

Main Menu

System Time	(variable)
System Date	(variable)

Advanced Menu

CPU Configuration

Max CPUID Value Limit:	[Disabled]
Execute Disable Bit	[Enabled]

IDE Configuration

Mirrored IDER Configuration	[Disabled]
Configure SATA#1 as	[RAID]
Hard Disk Write Protect	[Disabled]
IDE Detect time Out (Sec)	[35]
ATA(PI) 80Pin Cable Detection	[Host & Device]

Floppy Configuration

Floppy A	[Disabled]
----------	------------

SuperIO Configuration

OnBoard Floppy Controller	[Disabled]
Floppy Drive Swap	[Disabled]
Serial Port A Address	[3F8/IRQ4]

Serial Port B Address	[2F8/IRQ3]
Serial Port B Mode	[Normal]
Parallel Port Address	[378]
Parallel Port Mode	[ECP]
ECP Mode DMA Channel	[DMA3]
Parallel Port IRQ	[IRQ7]
Serial Port C Address	[3E8]
Serial Port C IRQ	[IRQ11]
Serial Port D Address	[2E8]
Serial Port D IRQ	[IRQ10]
Serial Port D Mode	[Normal]
Hardware Health Configuration	
Hardware Health Function	[Enabled]
ACPI Configuration	
General ACPI Configuration	
Suspend Mode	[Auto]
Repost Video on S3 Resume	[No]
Advanced ACPI Configuration	
ACPI Version Features	[ACPI v3.0]
ACPI APIC support	[Enabled]
AMI OEMB table	[Enabled]
Headless mode	[Disabled]
ACPI S5 Shutdown	[Enabled]

Chipset ACPI Configuration	[No]
Energy Lake Feature	[Disabled]
APIC ACPI SCI IRQ	[Disabled]
UB Device Wakeup From S3/S4	[Enabled]
AHCI Configuration	
AHCI Port0 [Hard Disk]	
SATA Port0	[Auto]
AHCI Port1 [Not Detected]	
SATA Port1	[Auto]
AHCI Port2 [Not Detected]	
SATA Port2	[Auto]
AHCI Port3 [Not Detected]	
SATA Port3	[Auto]
AHCI Port4 [CDROM]	
SATA Port4	[Auto]
AHCI Port5 [Not Detected]	
SATA Port5	[Auto]
Event Log Configuration	
View Event Log	
Mark all event as read	
Clear Event Log	

Intel AMT Configuration

Intel AMT Support	[Disabled]
-------------------	------------

PCI Express Configuration

Active State Power-Management	[Disabled]
-------------------------------	------------

Remote Access Configuration

Remote Access	[Disabled]
---------------	------------

Trusted Computing (Available only with TPM Board present)

TCG/TPM Support	[Yes]
-----------------	-------

Execute TPM Command	[Don't Change]
---------------------	----------------

Clearing The TPM	[Press Enter]
------------------	---------------

TPM Enable/Disable Status	[Enabled]
---------------------------	-----------

TPM Owner Status	[UnOwned]
------------------	-----------

USB Configuration

USB Devices Enabled:	[Enabled]
----------------------	-----------

1 Hub

Legacy USB Support	[Enabled]
--------------------	-----------

USB 2.0 Controller Mode	[HiSpeed]
-------------------------	-----------

BIOSEHCI Hand-Off	[Enabled]
-------------------	-----------

PCI/PnP Menu

Clear NCRAM	[No]
Plug & Play O/S	[No]
PCI Latency Timer	[64]
Allocate IRQ to PCI VGA	[Yes]
Palette Snooping	[Disabled]
PCI IDE BusMaster	[Disabled]
OffBoard PCI IDE Card	[Auto]
IRQ3	[Available]
IRQ4	[Available]
IRQ5	[Available]
IRQ7	[Available]
IRQ9	[Available]
IRQ10	[Available]
IRQ11	[Available]
IRQ14	[Available]
IRQ15	[Available]
DMA Channel 0	[Available]
DMA Channel 1	[Available]
DMA Channel 3	[Available]
DMA Channel 5	[Available]
DMA Channel 6	[Available]
DMA Channel 7	[Available]
Reserved Memory Size	[Disabled]

Boot Menu

Boot Settings Configuration	
Quick Boot	[Disabled]
Quiet Boot	[Enabled]
Display Type	[Logo]
Boot Type	[Cold Boot]
Boot Order Defaults	[LAN First]
Boot Type	[Cold Boot]
BBS PopUp Menu	[Enabled]
AddOn RoM Display Mode	[Force BIOS]
Bootup Num=Lock	[On]
PS/2 Mouse Support	[Auto]
Wait For 'F1' If Error	[Disabled]
Hit 'DEL' Message Display	[Enabled]
Interrupt 19 Capture	[Disabled]
Boot Device Priority	
1 st Boot Device	[Network:IBA GE Slo]
2 nd Boot Device	[HPM.1.10.14.56] (Hidden Partition Manager)
3 rd Boot Device	[CD/DVD:P4-DW-224E-]
4 th Boot Device	[RAID:ST3802110AS] (Hard Drive)

Hard Disk Drives

1 st Drive	[RAID:ST3802110AS]
<hr/>	
CD/DVD Drive	
<hr/>	
1 st Drive	[CD/DVD:P4-DW-224E-]
<hr/>	
Initiate Pre-boot Services	[Hot Key]
<hr/>	

Security Menu

Supervisor Password:	:Not Installed
User Password:	:Not Installed
Change Supervisor Password	[Enter]
Change User Password	[Enter]
Boot Sector Virus Protection	[Disabled]

Chipset Menu

NorthBridge Configuration	
Memory Remap Feature	[Enabled]
DRAM Frequency	[Auto]
Configure DRAM Timing by SPD [Enabled]	
Memory Hole	[Disabled]
Primary Graphics Adapter	[PEG/PCI]
Internal Graphics Mode Select	[Enabled, 8MB]
Internal Graphics Function 1	[Enabled]
PEG Port configuration	
PEG Port	[Auto]
Video Function Configuration	
DUMT Mode Select	[DUMT Mode]
DUMT/FIXED Memory	[256MB]
Boot Display Device	[Auto]
Local Flat Panel Scaling	[Auto]
Flat Panel Type	[Type 1]
Backlight Control Support	[VBIOS-Default]
BIA Control	[VBIOS-Default]
TV Standard	[VBIOS-Default]
Spread Spectrum Clock	[Disabled]
SouthBridge Configuration	
USB Functions	[10 USB Portal]

USB 2.0 Controller	[Enabled]
Front Panel USB Port	[Enabled]
GbE Controller	[Enabled]
GbE LAN Boot	[Enabled]
GbE Wake Up From S5	[Disabled]
Had Controller	[Enabled]
SLP_S4# <com./ Assertion Width	[1 to 2 seconds]
Restore on AC Power Loss	[Last State]
PCIE Ports Configuration	
PCIE Port 0	[Auto]
PCIE Port 1	[Auto]
PCIE Port 2	[Auto]
PCIE Port 3	[Auto]
PCIE Port 4	[Auto]
PCIE High Priority Port	[Disabled]
PCIE Port 0 IOxAPIC Enable	[Disabled]
PCIE Port 1 IOxAPIC Enable	[Disabled]
PCIE Port 2 IOxAPIC Enable	[Disabled]
PCIE Port 3 IOxAPIC Enable	[Disabled]
PCIE Port 4 IOxAPIC Enable	[Disabled]
PCIE Port 5 IOxAPIC Enable	[Disabled]
ASF Support	[Enabled]
ME Subsystem Configuration	

ME HECI Configuration

ME-HECI	[Enabled]
ME-IDER	[Disabled]
ME-KT	[Disabled]

ME AFSC Configuration

Fan Speed Monitor1	[Enabled]
Fan Speed Monitor2	[Enabled]
Fan Speed Monitor3	[Enabled]
AFSC Configuration	[Unlocked]
AFSC SST BUS	[Unlocked]
AFSC Sensor Thresholds	[Locked]
AFSC Manual Fan Ctrl	[Unlocked]
AFSC Chipset	[Unlocked]

Chapter 5: Operating System Recovery

Introduction

This chapter discusses procedures on how to recover the Operating System by using the CD-ROM drive. The software is distributed on bootable CD-ROM media.

In the event your terminal does not have an internal CD-ROM drive, the 7459 supports the following external CD-ROM drives.

- Teac USB CD-ROM Drive (2336-K208)
- NCR Services: External CDR/W DVD-ROM Drive (603-9014774)
- Network (See the *NCR FitClient Software User's Guide*, B005-0000-1235.)

Prerequisites

The following are required in order to perform an OS recovery from a CD.

- Bootable CD-ROM drive (internal or external)
- Keyboard

OS Recovery

Recovery Procedures

1. As the system reboots, insert the *NCR Partition Image Application CD* (D370-0605-0100). You should see a message during boot, indicating that the CD-ROM has been recognized.
2. At the menu, enter **1** to select the image restore function.

```
#####
NCR Partition Image Application
#####
```

```
Select an option
1 - Process Image/Script CD
2 - View Partition Image Documentation
3 - Interactive Create/Restore Via Network/USB
4 - Exit and reboot
```

3. At the prompt, insert the CD (disk 1 if OS occupies more than one disk) which contains the operating system image. Press **[Enter]**.

4. Select **A) Accept these arguments** and press **[Enter]** to start the restore process.

Confirm Pending Operation

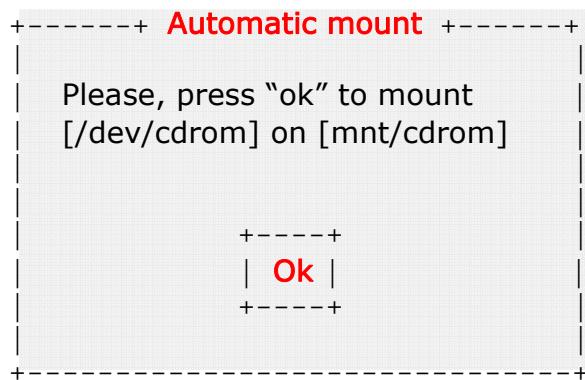
Mode is: Restore
Image is: nnnnnnxxx

2) Target Drive is: USB/SATA Storage A
3) Directory path is: /Images/
4) Filename is: 51924XPP
5) Reboot after operation complete: yes
6) Resize last data partition if possible: no

A) Accept arguments
V) View OS Documentation
Q) Quit and reboot

Select:

5. At the prompt, insert the second CD and then press **[Enter]**.



6. Repeat the previous step for each CD as required.
7. Remove the CD before the system automatically reboots.

Chapter 6: BIOS Updating Procedures

Introduction

The BIOS is located in the Serial Peripheral Interface (SPI) chip on the processor board. This chapter discusses procedures on how to update the terminal SPI and/or BIOS. The update software is distributed via the NCR Website.

The BIOS update can be performed using the following methods:

- Bootable CD
- Bootable USB Memory Drive
- Network – Refer to the *NCR FitClient Software User's Guide*, (B005-0000-1235) for information about this procedure.

CMOS Map Consideration

If you are using the WinSetCMOS Utility to set your CMOS settings to a specific configuration please keep in mind that the CMOS maps are unique to each BIOS version. If you upgrade to a new BIOS release you must also update your CMOS map. Otherwise you will experience checksum errors during POST.

Prerequisites

The following are required to perform a SPI/BIOS update.

- Bootable USB CD-ROM Drive
- USB Keyboard
- BIOS Software. Download from the NCR website:

<http://www.ncr.com>

- a. At this site, select the **Support** tab.
- b. Select **Drivers and Patches** → **Retail Support Files** → **NCR RealPOS and SelfServ Terminal and Operating Systems** → **NCR RealPOS 80XRT (7459)** → **BIOS**.
- c. Select the desired *SPI Files* (includes the BIOS) or *BIOS Files* (BIOS only).

Note: To update an existing terminal which has a BIOS earlier than 5.3.8.0 you must use the *SPI Files*, which update the entire SPI ROM image. Only the *BIOS Files* are needed to update a terminal which has BIOS 5.3.8.0 or Download the BIOS software to your hard drive.

- d. Save the software to your local hard drive.

Creating the Bootable Media

Creating a Bootable CD

The downloaded file is a CD image file (ISO) containing the files necessary to create a bootable CD. A system with a CD/DVD burner is required to perform this function.

1. Insert a writable CD in the CD/DVD burner drive.
2. Record the downloaded image file onto the CD using a utility that is capable of burning ISO files.

Note: You cannot simply drop the file on the CD and burn it. You must use software capable of recording ISO images onto CDs.

Creating a Bootable USB Memory Drive

The downloaded file contains the files necessary to create a bootable USB Memory Drive.

1. Insert a USB drive that is formatted as FAT (or FAT32).
2. Unzip the downloaded files.
3. Copy the files to the root directory of the USB Memory Drive.
4. Open a DOS command window
5. Change directory to the USB Memory Drive.
6. Execute the following command:

```
Syslinux -sfma <USB drive letter>
```

Example: Syslinux -sfma f:

This command erases any bootable methods that may be present on the USB drive and replaces it with the SPI/BIOS update process.

SPI/BIOS Updating Procedures

1. Insert the media containing the SPI/BIOS update software in the 7409.
2. Connect a USB keyboard to the terminal.
3. Apply power to the terminal.

Important: The update procedure requires two boots from the SPI/BIOS media. Be sure to set your boot order accordingly to make this happen. You can change the boot order temporarily in the *BIOS Setup Boot Menu* or you can press **[F8]** during boot (when you see the NCR logo) to enter the *Boot Select* menu.

- If you are using the integrated CD/DVD Drive select **CD/DVD:P1-DV-28S-V**.
 - If you are using the external USB CD Drive select **USB:TEAC CD-W552E**.
 - If you are using a USB Memory Drive select **USB:xxxx xxx**.
4. The terminal boots and displays the SPI/BIOS Update main menu.

There are six options from the main menu to run the update program. Three run automatically and two are interactive. Option 1, the Automatic SPI and BIOS Update executes automatically in 10 seconds unless the up/down arrow is pressed.

Automatic Method

With the Automatic Method you may see a prompt to enter the DMI (Desktop Management Interface), which is the terminal *Class/Model/Serial* information. This happens if the program detects invalid DMI information in the current BIOS, or if you are replacing the processor board, which has no *Class/Model/Serial* information in the BIOS.

Important: DMI information is mandatory.

Interactive Method

This method permits you to input/replace the *Class/Model/Serial* information that is stored in the BIOS.

Note: DMI information that is currently stored in the BIOS is displayed during power up. Press **[Tab]** at the NCR Logo to remove the logo. Press **[Pause]** to freeze the screen. Press **[Esc]** to continue.

5. Make a menu selection and follow the screen prompts (Option 1 is recommended).

```
1 Update SPI and BIOS - No prompt for Serial/Model/Class unless  
invalid  
2 Update BIOS only      - No prompt for Serial/Model/Class unless  
invalid
```

******* Forced Update of Serial/Model/Class Information *******

```
3 Update DMI only - Serial/Model/Class update ONLY (no BIOS  
or SPI Update)
```

```
4 Update of SPI and BIOS - Always prompts for  
Serial/Model/Class  
5 Update of BIOS only      - Always prompts for  
Serial/Model/Class
```

******* For Service Personnel Only *******

```
6 Update of SPI and BIOS - Reset to Default  
Serial/Model/Class information
```

Option 1 – Update SPI and BIOS – No prompt for Serial/Model/Class unless invalid

1. Highlight Option 1 and press **[ENTER]**. (Executes automatically in 10 seconds unless the up/down arrow is pressed.)
2. The Flash Program updates the SPI/BIOS, automatically powers down, and then reboots the terminal.
3. As the terminal reboots select the boot media again **[F8]** (if necessary) to have the terminal boot from the SPI/BIOS media.
4. Let the terminal boot from Option #1 (default).
5. The Manageability Engine (ME) is programmed and a message is displayed indicating power must be removed before continuing. Press **[3]** to perform a 20 second AC power removal (automatically executes in 2 minutes if no keys are pressed).
6. Remove the SPI/BIOS Update media before the system boots.
7. System is ready for operation.

Option 2 – Update BIOS only – No prompt for Serial/Model/Class unless invalid

This option automatically updates the BIOS only.

1. Highlight Option 2 and press **[ENTER]**.
2. The Flash Program updates the BIOS and automatically reboots the terminal.

Option 3 – Update DMI only - Serial/Model/Class update ONLY (no BIOS or SPI Update)

This option lets you enter the DMI information only. The SPI and BIOS are not updated.

1. Highlight Option 3 and press **[ENTER]**.
2. At the prompt press **[ENTER]** to enter the Class/Model/Serial Number information (DMI). Follow the onscreen format instructions.

Example: 7459-5000-8801 **[ENTER]**
54-19378230 **[ENTER]**

3. Press **1** to confirm the data and to continue.
4. Remove the BIOS Update media before the system boots.
5. System is ready for operation.

Option 4 – Update of SPI and BIOS – Always prompts for Serial/Model/Class

This option is similar to Option 1 above except you are prompted for *Class/Model/Serial* information at the beginning of the program. You also have to select which type of update to run, BIOS or SPI.

1. Highlight Option 4 and press **[ENTER]**.
2. At the prompt press **[ENTER]** to enter the Class/Model/Serial Number information (DMI). Follow the onscreen format instructions.

Example: 7459-5000-8801 **[ENTER]**
54-19378230 **[ENTER]**

3. Press **1** to confirm the data and to continue.
4. The Flash Program updates the SPI/BIOS, automatically powers down, and then reboots the terminal.
5. As the terminal reboots select the boot media again **[F8]** (if necessary) to have the terminal boot from the SPI/BIOS media.
6. Let the terminal boot from Option #1 (default). The Manageability Engine (ME) is programmed at this time.
7. At the prompt:
(Press <0> for command prompt, or <3> to reboot (automatic i seconds) press **[3]** to reboot.)
8. A message is displayed indicating power must be removed before continuing. Press **[3]** to perform a 20 second AC power removal (automatically executes in 2 minutes if no keys are pressed).
9. Remove the BIOS/SPI Update media before the system boots.

Option 5 – Update of BIOS only – Always prompts for Serial/Model/Class

This option prompts for *Class/Model/Serial* information at the beginning of the program and then updates the BIOS only.

1. Highlight Option 5 and press **[ENTER]**.
2. At the prompt press **[ENTER]** to enter the Class/Model/Serial Number information (DMI). Follow the onscreen format instructions.

Example: 7459-5000-8801 **[ENTER]**
54-19378230 **[ENTER]**

3. Press **1** to confirm the data and to continue.
4. The Flash Program updates the SPI/BIOS and automatically reboots the terminal.

Option 6 – Update SPI and BIOS – Default Serial/Model/Class information

This option is for Service Personnel only. It updates the SPI and BIOS but leaves the *Class/Model/Serial* fields empty (erased). The DMI information is then entered when the board is installed in a terminal.

1. Highlight Option 6 and press **[ENTER]**.
2. The SPI and BIOS are updated and the system reboots (2 times).
3. Remove the SPI/BIOS Update media before the system boots.
4. System is ready for operation.

Chapter 7: Maintenance

Cabinet Cleaning Procedures

1. Disconnect the unit from the power outlet before cleaning.
2. Do not use alcohol (methyl, ethyl, or isopropyl) or any strong dissolvent. Do not use thinner or benzene, abrasive cleaners, or compressed air.
3. Use a cloth lightly dampened with a mild detergent.
4. Avoid getting liquids inside the unit. If liquid does get inside, have a qualified service technician check it before you power it on again.

Touch Screen Cleaning Procedures

1. Do not wipe the screen with a cloth or sponge that could scratch the surface.
2. Spray an ammonia-based glass cleaner on a soft cloth and gently wipe the touch screen clean. *Never* apply the cleaner directly on the Touchscreen.

Warning: Do not use any other types of cleaners such as vinegar, solvents, or degreasers. These can damage the screen.

3. Wipe the screen and edges dry.
4. Make sure the glass and screen edges dry completely before using the unit.

MSR Cleaning and Treatment Cards

MSR Cleaning Cards and MSR Treatment Cards may be purchased from NCR or KIC Products. For details, see <http://www.ncr-direct.com> or <http://www.kicproducts.com>.

Part	Part Number	NCR Part Number
MSR Cleaning Card, Dry		998-0052929
MSR Cleaning Card, Wet	520522 (box of 50)	603-9014730
MSR Treatment Card	9436-2446 (box of 20)	497-0453056

MSR Treatment Card

The MSR Treatment Card is used to assist in protecting Magnetic Stripe Readers from Electrostatic Discharge (ESD), which can cause failures when swiping cards that have metallic hologram stripes.

Swipe the card through the MSR in a smooth motion. Only swipe it down ONCE and up ONCE. Allow the device to dry for 5 minutes before swiping any other cards.

Note: Each long side of the card may be used twice. Each short side of the card may be used only once. Thus, a single card can treat 6 MSR devices with one UP and one DOWN swipe per MSR device. These limits should not be exceeded due to the possibility of spreading contaminants from machine to machine and/or reducing ESD protection.



Note: If all six up/down swipes are not used on a fresh card it should be placed in a sealed (Ziploc) bag for future use.

Cleaning/Treatment Frequency

New MSR:

Prior to placing in operation, the MSR device should be swiped with the MSR Treatment Card.

Existing MSR:

An existing MSR should be cleaned using an MSR Cleaning Card before treating it with a MSR Treatment Card. For low use retail establishments, the cleaning and treatment procedures should be followed at least once per month. In areas of extremely high traffic (in excess of 500 swipes per day) or an operating environment that is high in contaminants, such as found in the food service industry, a weekly cleaning and treatment should be performed.

Appendix A: Feature Kits

This section contains a list of the available hardware Feature Kits that can be installed in the customer environment. Kit installation instructions (for those requiring instruction) are available on the Information Products web sites.

- Internet: <http://www.info.ncr.com>
- NCR Intranet: <http://inforetail.ncr.com>

To locate the installation guides on these sites:

1. Select **General Search**.
2. Select the **Kits** icon.
3. In the **Title** field, enter the *Kit Title*.

Example: *Memory*

or

In the **Product ID** field, enter the Kit Number.

Example: *7459-K135*

4. Select **Search**.

The file can be viewed online by left-mouse clicking on the pub title, or if you prefer to download the entire file you can right-mouse click on the title and then a *Save target as*.

If you aren't sure of the title or number you can display all kits associated with a terminal product class by:

1. In the **Class** drop-down list, enter the *Class* of the terminal.
2. Select **Search**.

Example: *7459*

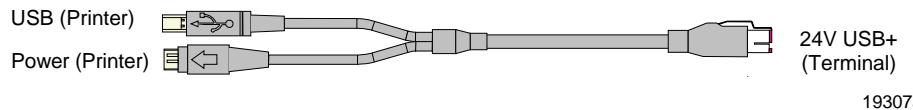
Appendix C: Cables

Printer Cables

Powered USB

497-0441177 - 1 m
(1432-C088-0010)

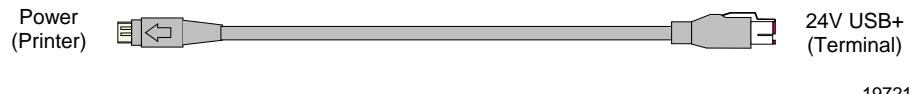
497-0441178 - 4 m
(1432-C088-0040)



Powered USB (Power Only)

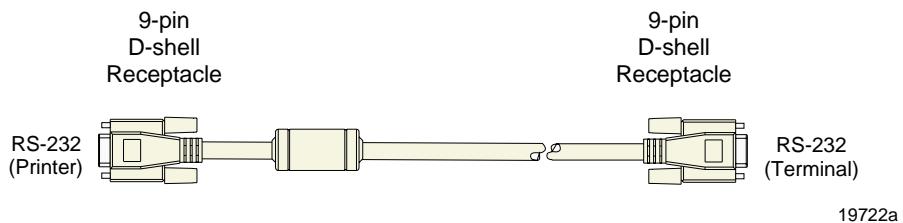
497-0441156 - 1m
(1432-C092-0010)

497-0441157 - 4 m
(1432-C092-0040)

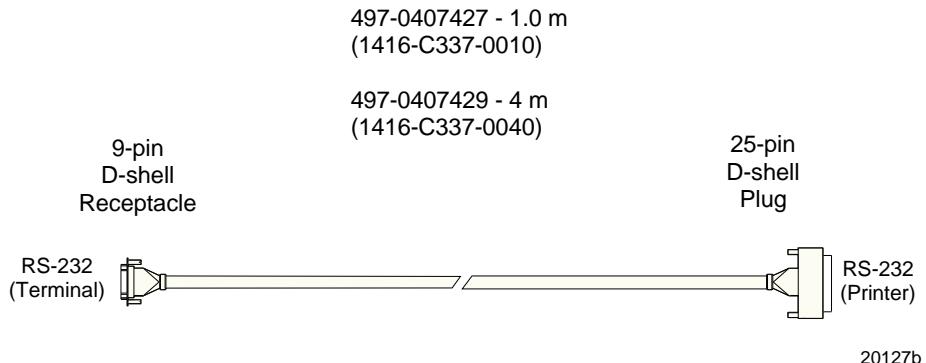


RS-232 (7167/7197, 9-Pin to 9-Pin)

(Beige)	(Black)
497-0408349 - 0.7 m (1416-C359-0007)	497-0430266 - 1.0 m (1416-C879-0010)
	497-0430265 - 4 m (1416-C879-0040)

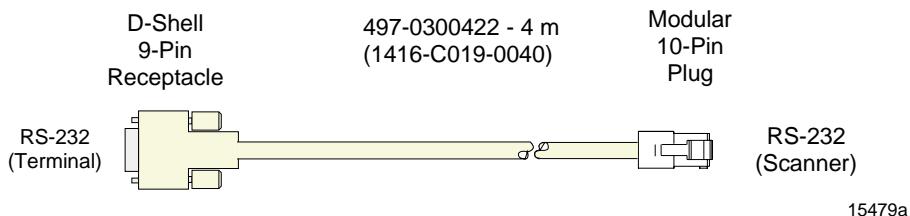


RS-232 (7162, 9-Pin to 25-Pin)



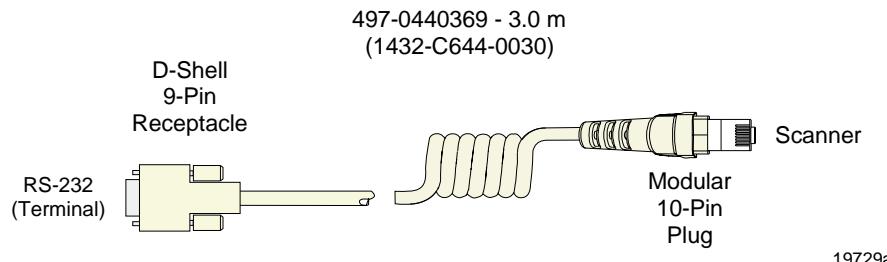
Scanner Cables

RS-232 (7872/7875 Scanner/Scale)



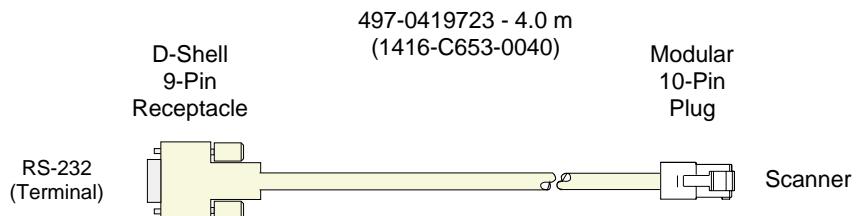
15479a

Powered RS-232 (7892 Scanner)



19729a

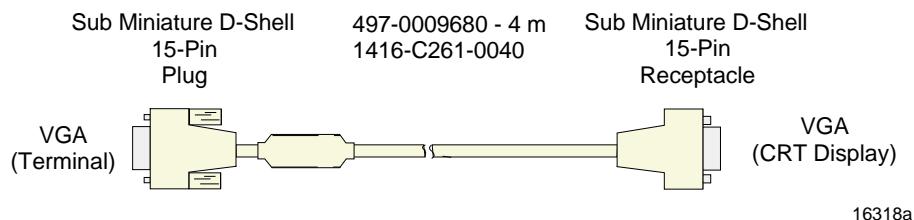
Powered RS-232 (7882 Scanner)



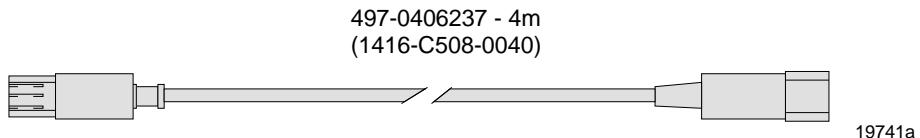
19728a

Display Cables

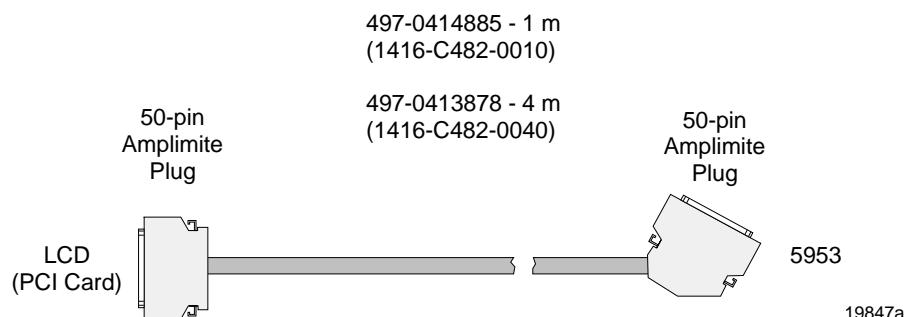
VGA Display, Remote Extension, Color



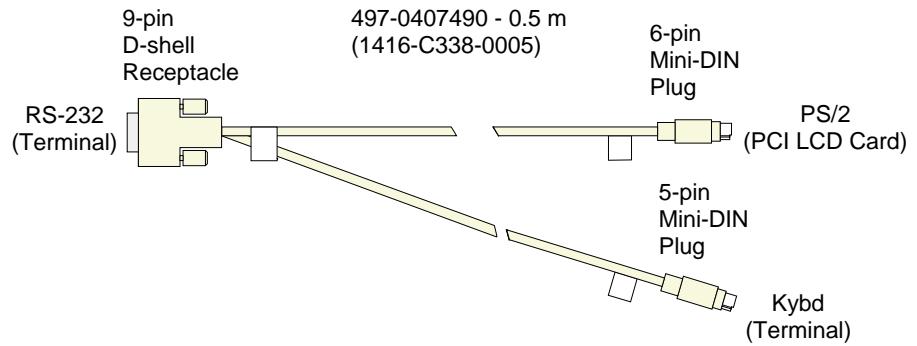
CRT AC Power Extension



DynaKey (5953-1xxx/2xxx)

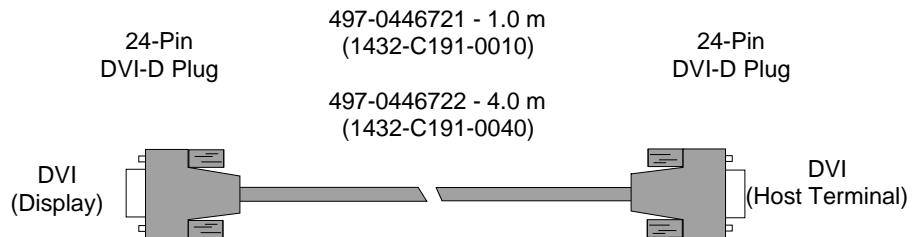


Wedge Keyboard Y-Cable



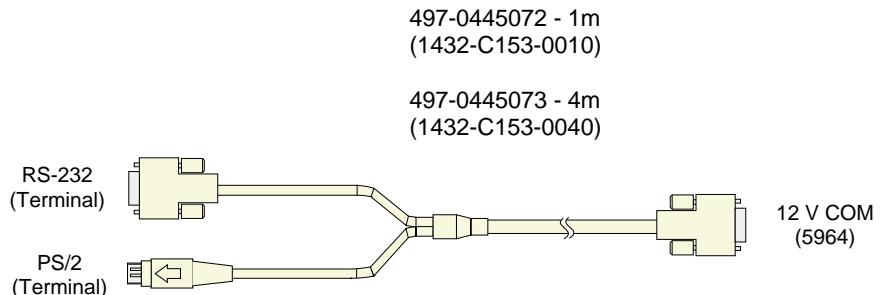
19733a

DVI to DVI (5953/5964)



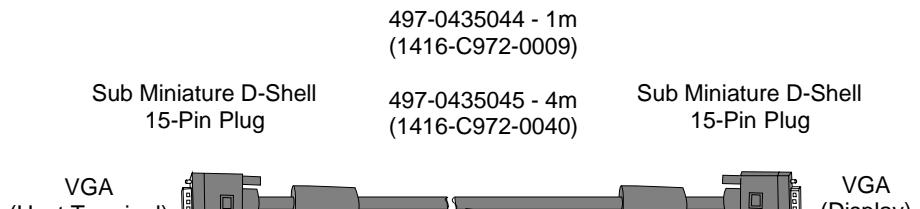
23939

PS/2 - RS-232 & Power (5964)



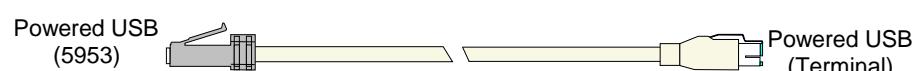
19734r

VGA (5964)



23433

USB +Power (5953)

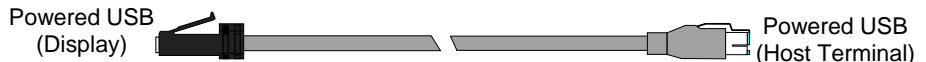


20059r

USB +Power (5964/5975)

497-0445076 - 1 m
(1432-C156-0010)

497-0445077 - 4 m
(1432-C156-0040)



23434

Powered RS-232 (5975)

D-Shell
9-Pin
Receptacle

497-0439734 - 1.0 m
(1432-C043-0010)

Modular
10-Pin
Plug

497-0439735 - 4.0 m
(1432-C045-0040)



22927

Power (5942)

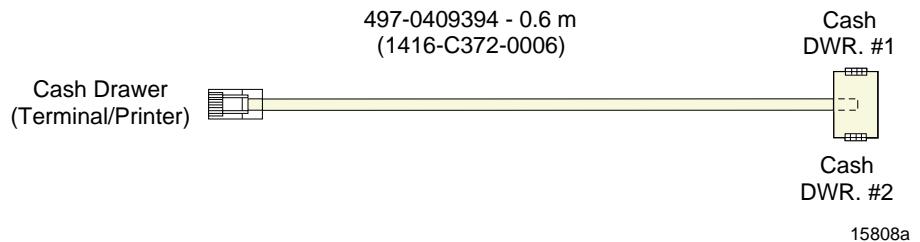
497-0428512 - 4 m
1416-C851-0040



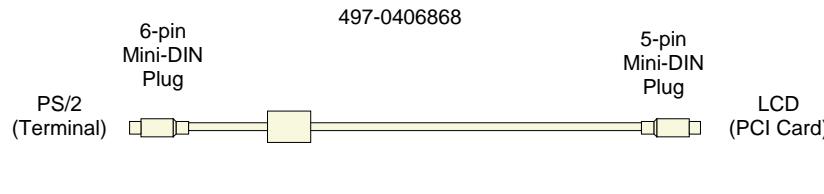
23940

Cash Drawer Cables

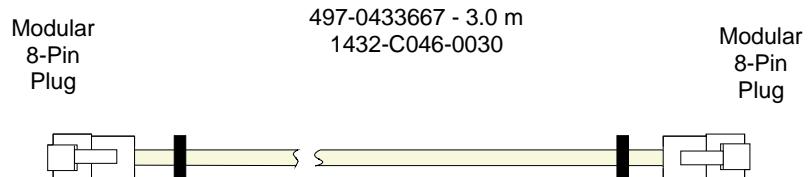
Dual Cash Drawer, Y-Cable



Wedge Keyboard Adapter

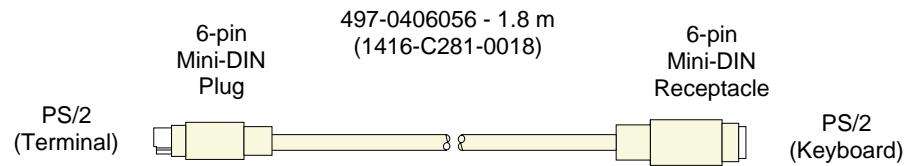


Ethernet, 10/100/1000BaseT Cable



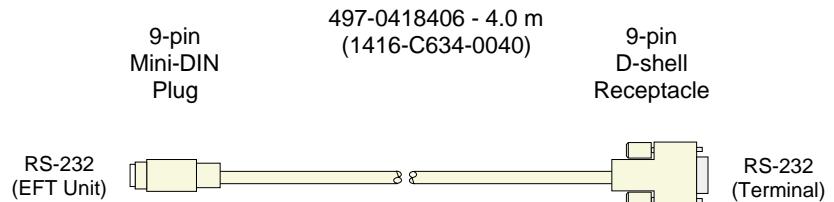
22584a

PS/2 Keyboard Extension



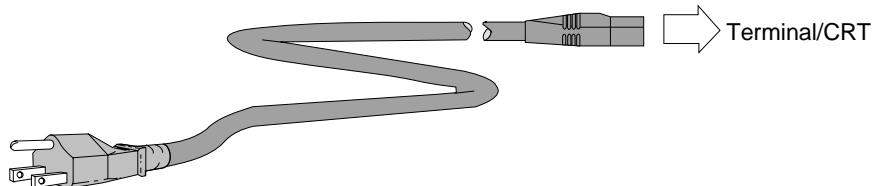
15403a

RS-232 w/Power (5945/5992 EPT)



19723a

Power Cables



1416-C325-0030 006-1009037 - U.S.

The following power cables (not shown)
also have an IEC connection of 45 mm:

1416-C320-0030 006-8601011 - SEV

1416-C321-0030 006-8601012 - U.K.

1416-C322-0030 006-8601019 - Australia

1416-C323-0030 006-8601010 - International

1416-C391-0030 006-8605488 - China

1416-C393-0030 006-8601001 - Japan Twist-Lock

27304