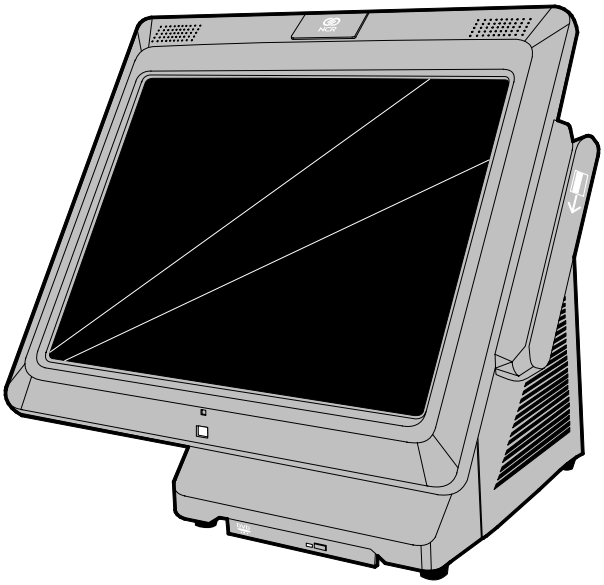
NCR RealPOS 70*XRT* (7403)
POS Workstation

Release 1.0

User Guide



B005-0000-1872
Issue A

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Preface

Audience

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

Safety Requirements

The NCR RealPOS 70*XRT* 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 70XRT Site Preparation Guide* (B005-0000-1873)
- *NCR RealPOS 70XRT Hardware Service Guide* (B005-0000-1874)
- *NCR RealPOS 70XRT Parts Identification Manual* (B005-0000-1875)
- *NCR Retail Systems Manager Software User's Guide* (B005-0000-1518)

Table of Contents

Revision Record

Issue	Date	Remarks
A	Nov 2008	First issue

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Chapter 1: Overview

Introduction

The NCR RealPOS 70*XRT* (also referred to as NCR 7403) is the latest in scalable, retail-hardened Integrated Point-of-Sale. The NCR RealPOS 70*XRT* continues to offer an intuitive capacitive touch screen interface plus a variety of retail consumer interfaces. The product is designed for extended life cycles, stability and superior availability. The terminal has been enhanced to offer even better serviceability and scalability than previous generations. Engineered to thrive in the most demanding environments, the NCR RealPOS 70*XRT* offers retailers in Hospitality, Convenience Stores, and General Merchandise a POS platform that offers exceptional value for their POS investment.

Model Numbers

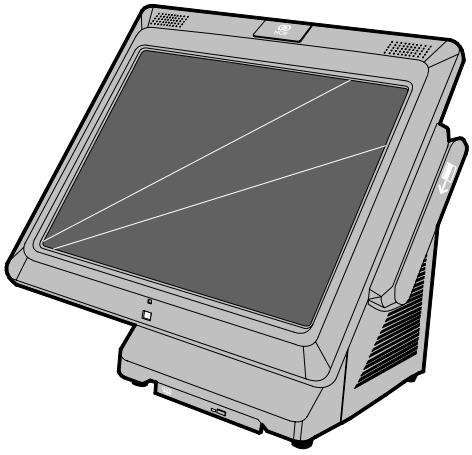
Major Model	Description
7403-1000	Intel Celeron processor, 1GB DDR2, No Hard Disk, US Power Cord
7403-1001	Intel Celeron processor, 512MB DDR2, 80GB or larger Hard Disk, US Power Cord
7403-1300	Intel Core2 Duo T7500 processor, 2GB DDR2, No Hard Disk, US Power Cord
7403-0015	LCD Touch Display, 15”, Capacitive

Terminal Dimensions and Weights

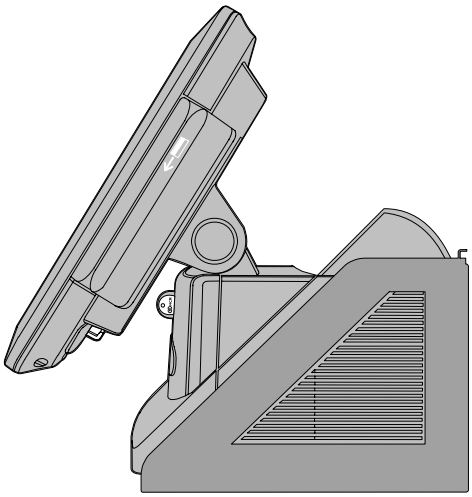
See the *NCR RealPOS 70XRT Site Preparation Guide*, B005-0000-1464.

Optional Configurations

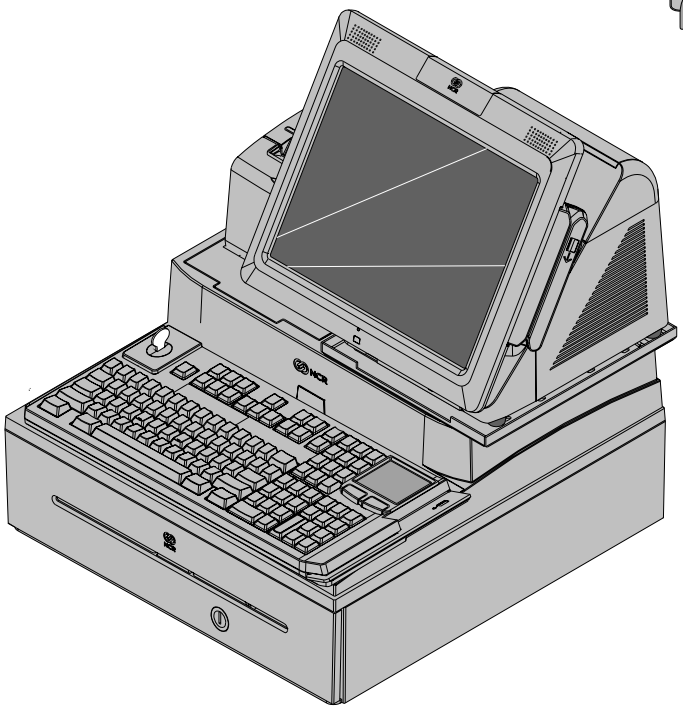
The NCR RealPOS 70*XRT* can be a free standing desktop, wall mounted, or it can be combined with a integration tray to add further value and save valuable counter space. The integration tray supports a variety of NCR's most popular peripheral options.



Desktop



Wall Mount



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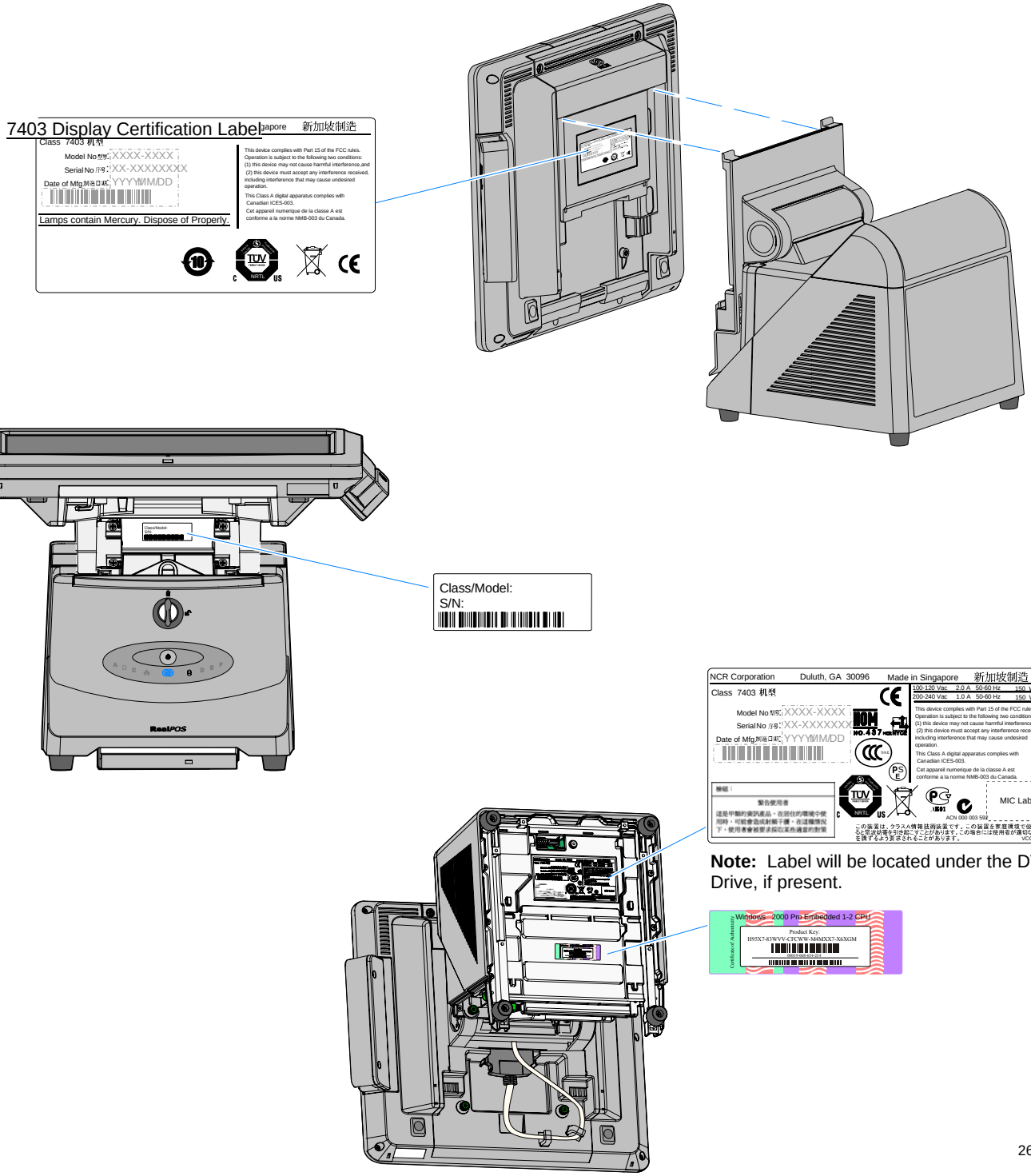
Integration Tray

Model and Serial Number Labels

The serial number and model number labels located on the back of the Display Head, on the top back edge of the Display Head, and on the bottom of the Base. If the terminal was shipped with an Operating System pre-installed then there is also a Certificate of Authenticity label on the bottom of the Base.



Note: Label will be located under the DVD Drive, if present.

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Features

- Serial ATA (SATA) Hard Drive Interface
- High-speed Gigabit Ethernet
- Intel AMT 4.0 Remote Management
- Proven Capacitive Touch Technology
- High Brightness 15" LCD
- Stereo Speakers
- Motion Detection Sensor
- 0 – 90 Degree Display Tilt
- 2x20 VFD Customer Display
- Dual Cash Drawer Support
  - Single Connector for Backwards Compatibility
  - Connected through a cash drawer Kickout connector on the I/O Board or through the cash drawer Kickout connector on the transaction printer.
  - The terminal can be configured with 0, 1, or 2 cash drawers. The first drawer is attached to the terminal through a cable with an RJ-45 connector. A second drawer can be connected using a 'Y' cable.

    Note: A single *Open/Close* status signal is shared with both drawers. Therefore, it is not possible to determine which cash drawer is open.
- Four Powered Serial Ports (I/O Board)
- Powered Serial Port to Support an Integrated Customer Display (Backplane Board)
- Two 12V USB+Power Ports (I/O Board)
- One 24V USB+Power port (I/O Board)
- Six Type-A USB Connectors (4 on I/O Board, 1 on Backplane, 1 in Display Head)
- MIC Input (I/O Board)
- Audio Out (I/O Board)
- VGA Connector (Backplane Board)
- Combination Power/Audio Line Out Port to Support Customer Displays (Backplane)
- Speed Controlled CPU Fan
- Integrated Signage System

- Modules Plug into a Backplane Board
  - Front Accessibility
  - Eliminates Most Internal Cables
  - Simplifies Upgrades
  - Faster On-Site Service
  - Efficient Depot and Self-Service Options
- Removable Display Head
- Power Supply
  - 265W Output Power
  - Custom ATX12V Power Supply
  - 80+ Certified
  - Modular and Serviceable w/o Disconnection of any Cables
  - Supports NCR Printers Running in 75W Mode

Motherboard

- Mobile Intel® GM 45 Express Chipset
- Intel® Processors
  - Intel® Core™2 Duo T7500
  - Intel® Celeron® 575
- Two SODIMM Sockets Supporting 667 – 800 MHz DDR2 Memory Modules
  - 512MB – 4GB
  - Dual Channel Support
- Intel Cantiga-GM Chipset
  - Intel Cantiga-GM Graphics Memory Controller Hub (GMCH)
  - Intel ICH9M I/O Controller Hub
- IO connections are through a backplane board except for devices plugging directly into motherboard. Another IO Connector row is located on a separate I/O Board.
- Video – Intel integrated graphics subsystem (Gen 5.0 Core, 457MHz) with dual display support
  - LVDS LCD supporting dual channel 24 bit panels including DDC signals and backlight control
  - VGA (analog) including DDC

- Audio – Intel High Definition Audio and HD Codec driving/receiving these interfaces from the backplane (Jack detect support on all ports)
  - Speaker out L/R with 3W/channel amplifier on motherboard.
  - Headphone out (port can be re-tasked using HD audio)
  - MIC in (port can be re-tasked using HD audio)
  - Additional audio out port (for future use)
- LPC Bus
  - LPC driven onto backplane to interface SuperIO or other LPC devices elsewhere in the system
- USB
  - Support for High Speed USB devices, support for USB port disable
  - All 12 USB ports available on Cantiga are driven into the backplane
  - A single over-current signal is received from the backplane.
- PCI Express
  - The motherboard drives two PCI Express x1 interfaces into the backplane
- SATA
  - Three SATA ports driven onto backplane
  - Support for two hard disk drives and one optical disk drive
  - Intel Matrix Storage Manager (includes RAID) supported on all ports
- AMT
  - Full support for Intel AMT 4.0 including out of band functions
- LAN
  - Intel 82567 Platform LAN connect with 10/100/1000 Ethernet support LAN
- BIOS Hardware Support
  - BIOS resident in the 32MB SPI Flash device
  - Support for ACPI, SMBIOS
- Security
  - TPM 1.2 module integrated into ICH9M in chipset

Cabinet

- Tool-Free Front Accessible Components
  - Motherboard on a Removable Sled
  - One or Two SATA Hard Drives
  - DVD ROM Drive
  - Power Button
- Nine Visible LEDs
  - Lighted Logo to Indicate Power On / Suspend Mode
  - LAN Link Activity
  - Hard Drive Activity
  - Six Diagnostic LEDs

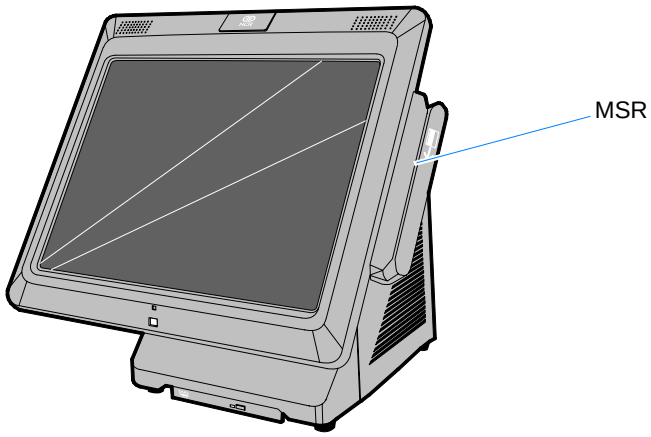
Storage Media

- Hard Drive Options
  - Single 3.5” Hard Drive
  - Dual 2.5” Hard Drives (On-board RAID)
- Slim-line DVD-ROM Drive
- Solid State Drive – SATA interface

Operating Systems

- Windows XP Professional
- POSReady

MSR



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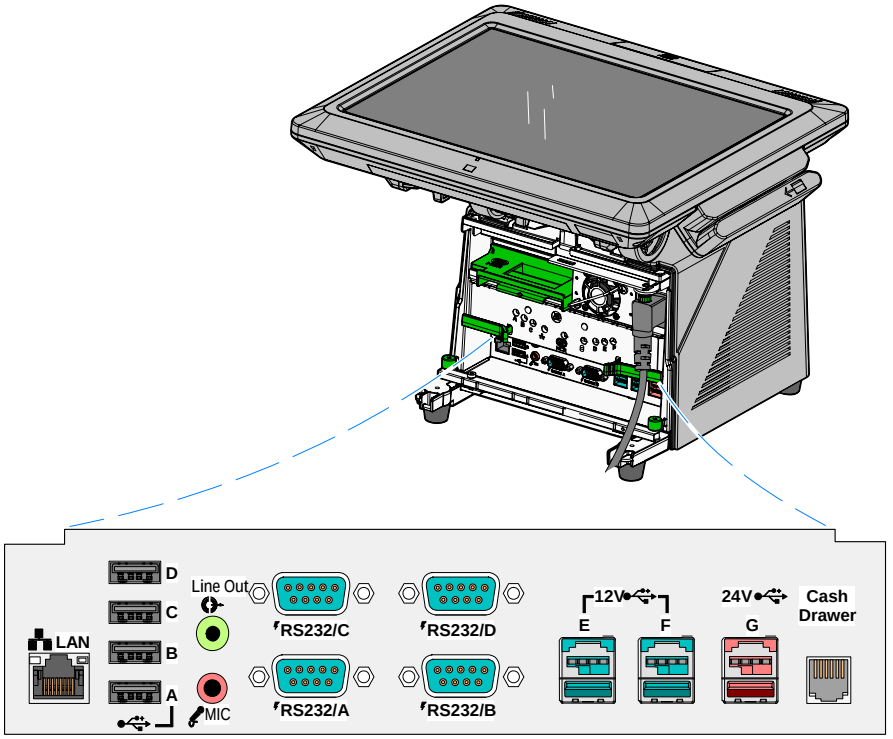
The MSR interface supports a maximum of 3 tracks of magnetic stripe information for support of ISO format cards.

I/O Board

The I/O Board is used to provide external connections to the motherboard. It slides into position in the terminal underneath the motherboard.



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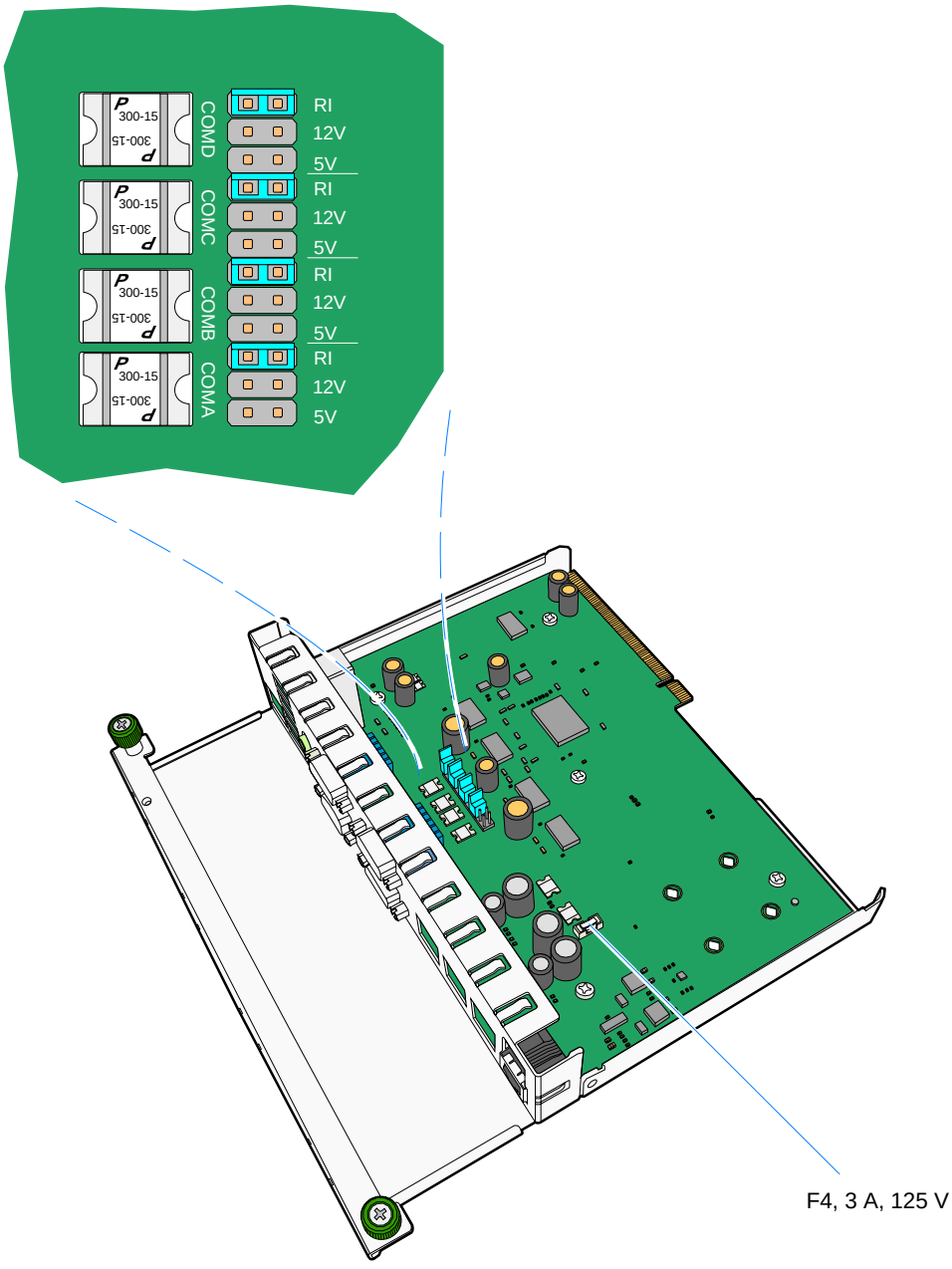
I/O Board Connectors

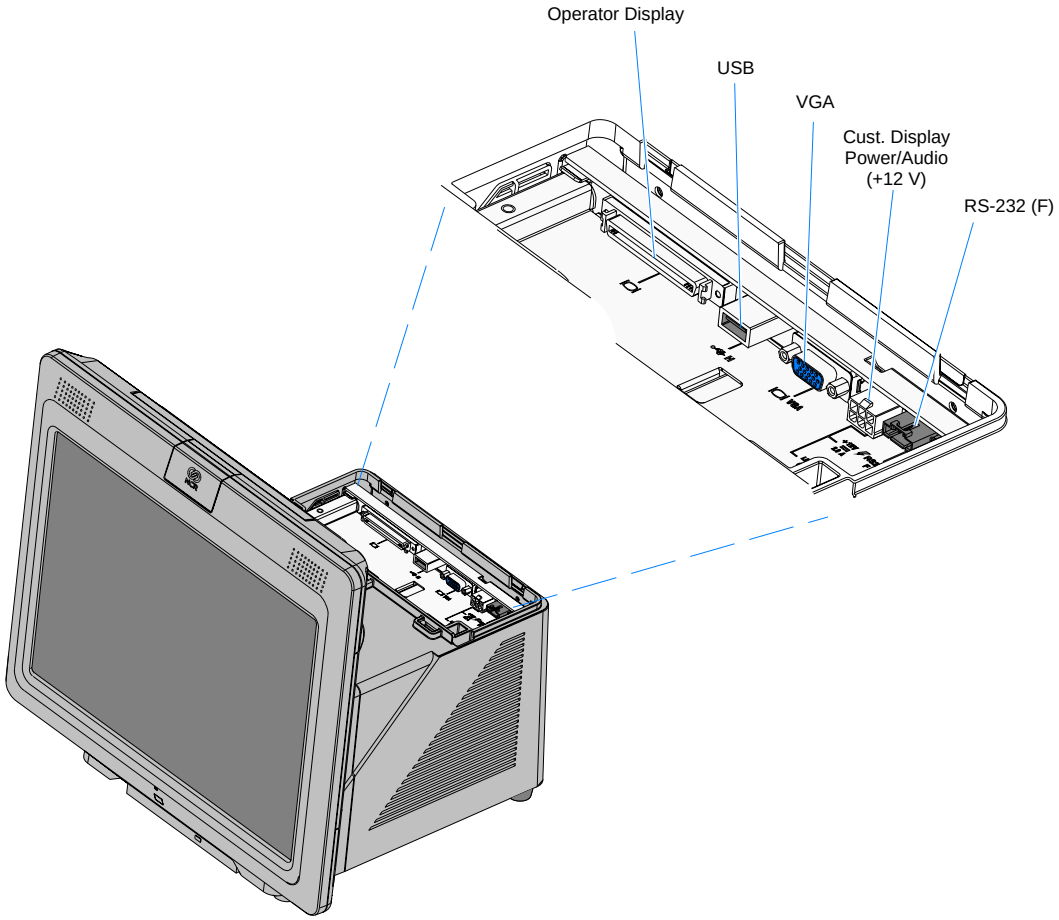
- Ethernet
  - One 10/100/1000 MDI port
- USB
  - Four High Speed Ports. Each port is capable of supplying 5 V at 0.5 A max. Self-healing polyfuses are used to provide current protection.
  - Two 12 V High Speed USB+Power ports. Each port is capable of supplying 12 V at 2.0 A max. Connected peripherals must not exceed this rating. Self-healing polyfuses are used to provide current protection.
  - One 24 V High Speed USB+Power ports. The port is capable of supplying 24 V at 0.5 A continuous and 3.0 A peak. A socketed fuse is used to provide current protection.
- Audio
  - Double stack connector for Headphone Out and Mic In
- Serial Ports (4)
  - RS-232 ports with selectable power (+5 V, +12 V, or RI) on pin 9. (One RS-232 port is connected to the backplane and is available on the Backplane Board.)
- Cash drawer Kickout port
  - Support for two cash drawers on a single port

Powered Serial Port Jumper Settings

The four serial ports have jumper options for either Ring Indicator (RI), fused +12 V, or fused +5 V on pin 9. When set to powered each port is capable of supporting up to 1.5 A (Max.) and is protected with self-healing poly-fuse. The default setting for all four ports is *Ring Indicator*.

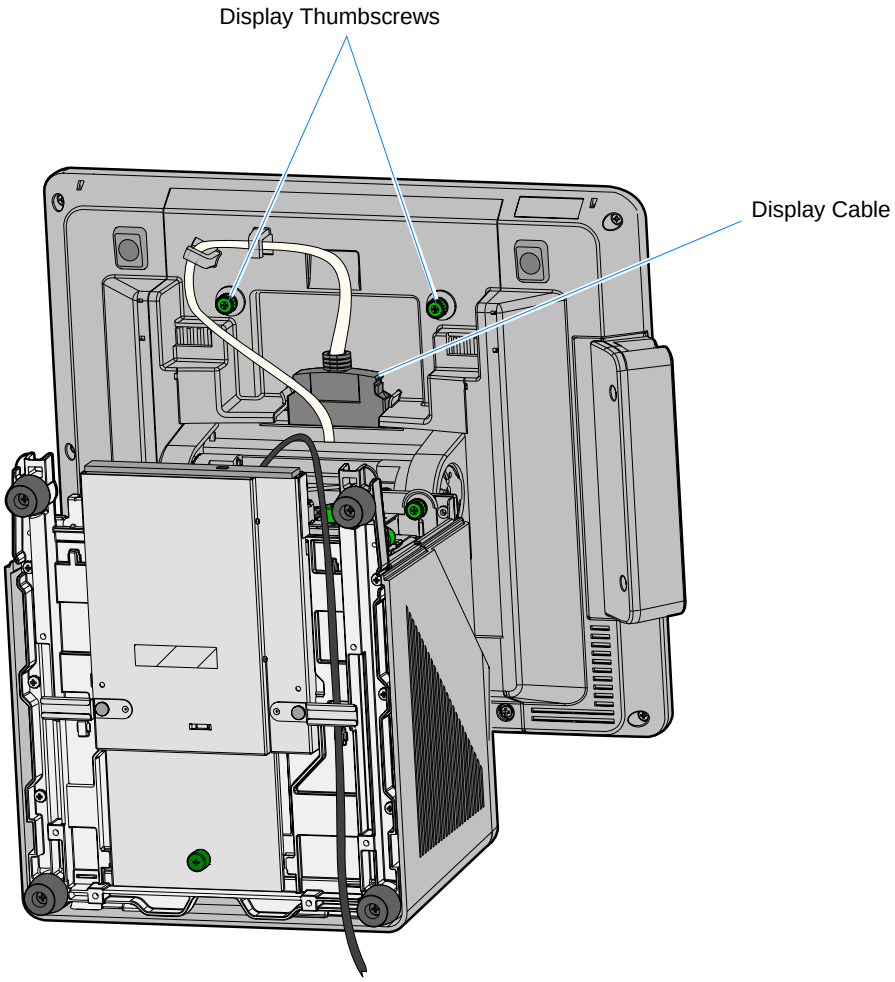


Additional connectors are located under the Customer Display.

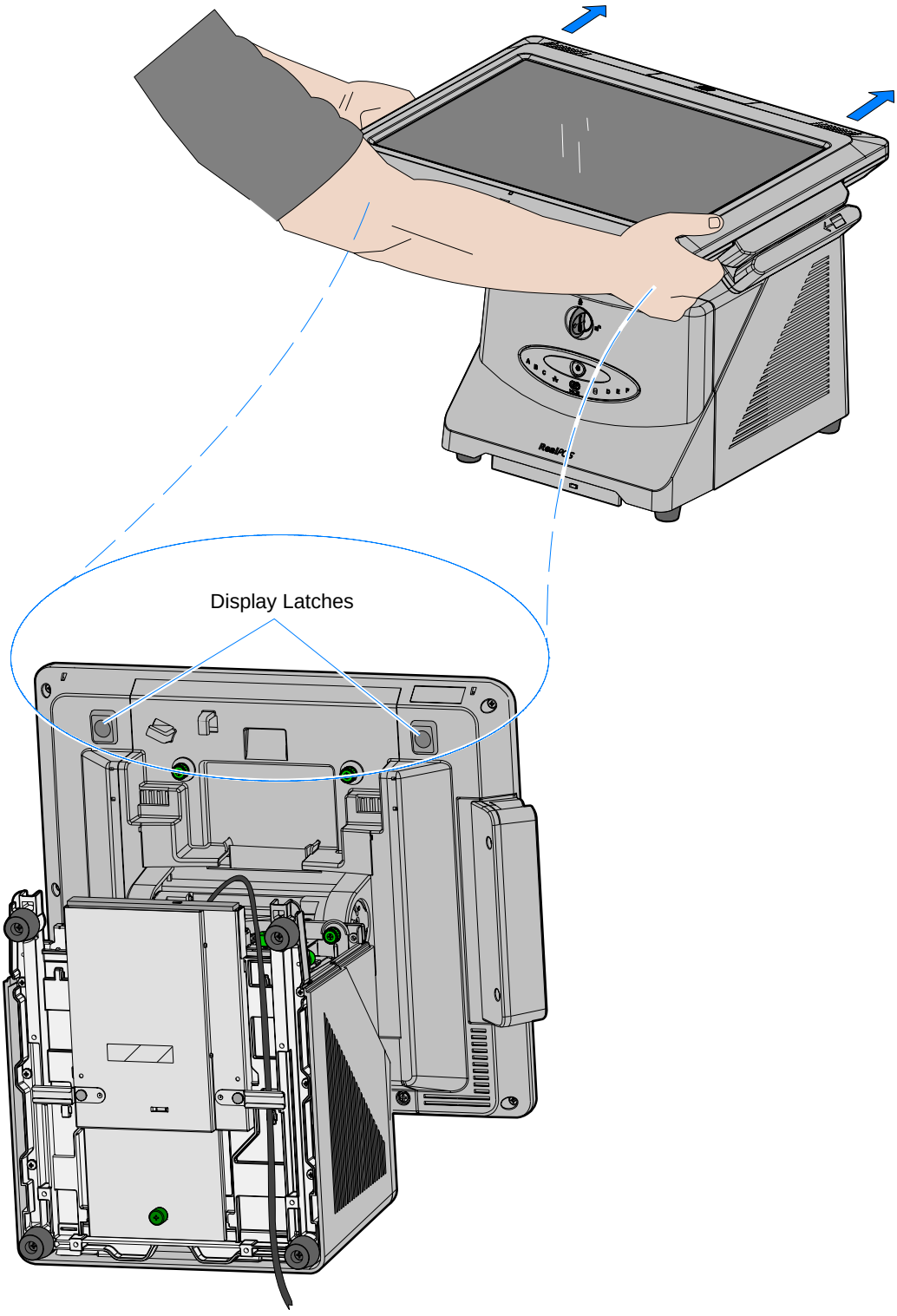


Removing the Display Head from the Base

1. Disconnect the Display Cable
2. Remove the cable from the Cable Guides.
3. Loosen the Display thumbscrews (2).

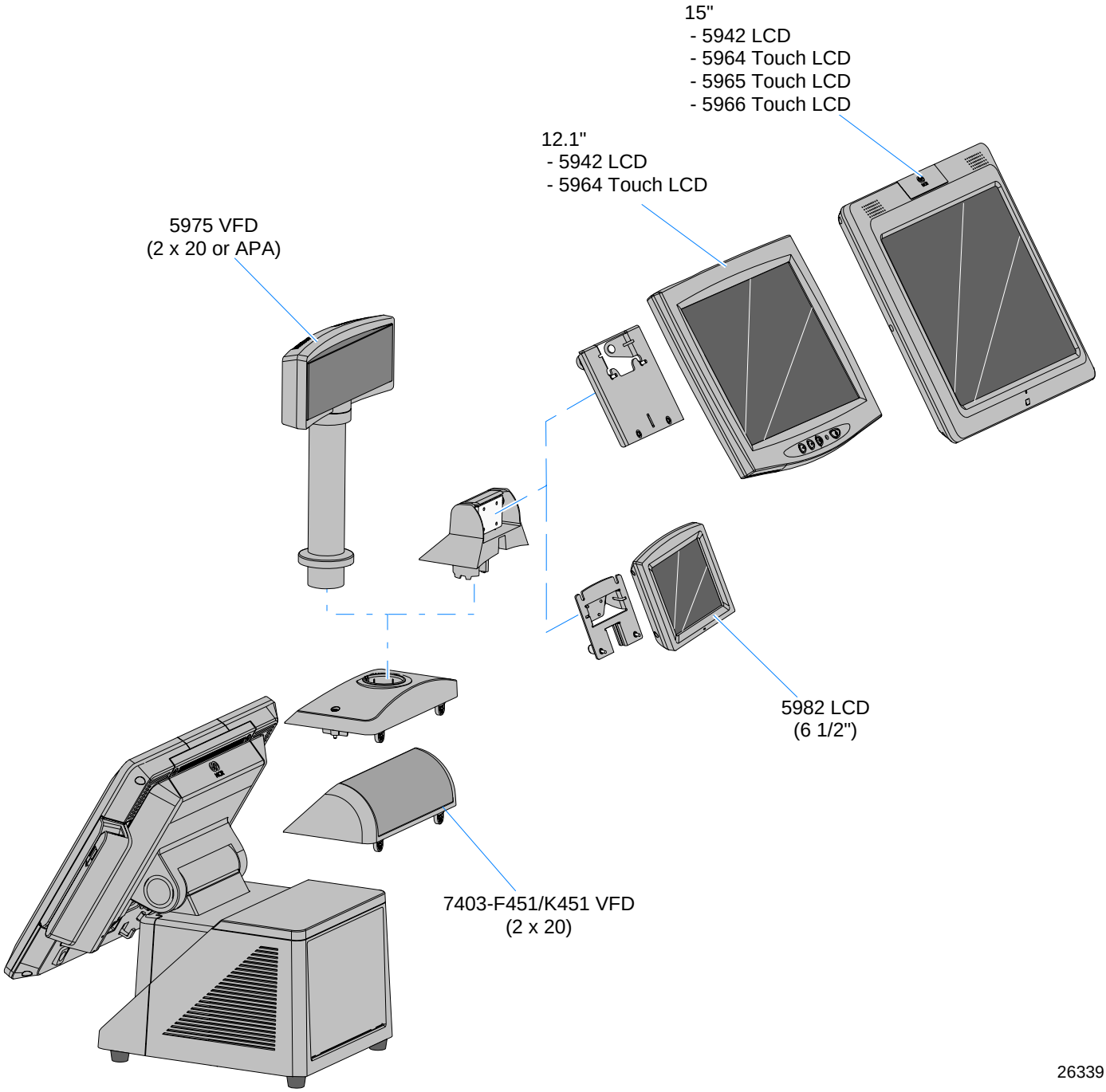


4. Depress the Display Release Latches (2) as you grasp the edges of the display and slide the Display Head toward the rear of the terminal to disengage it from the chassis.

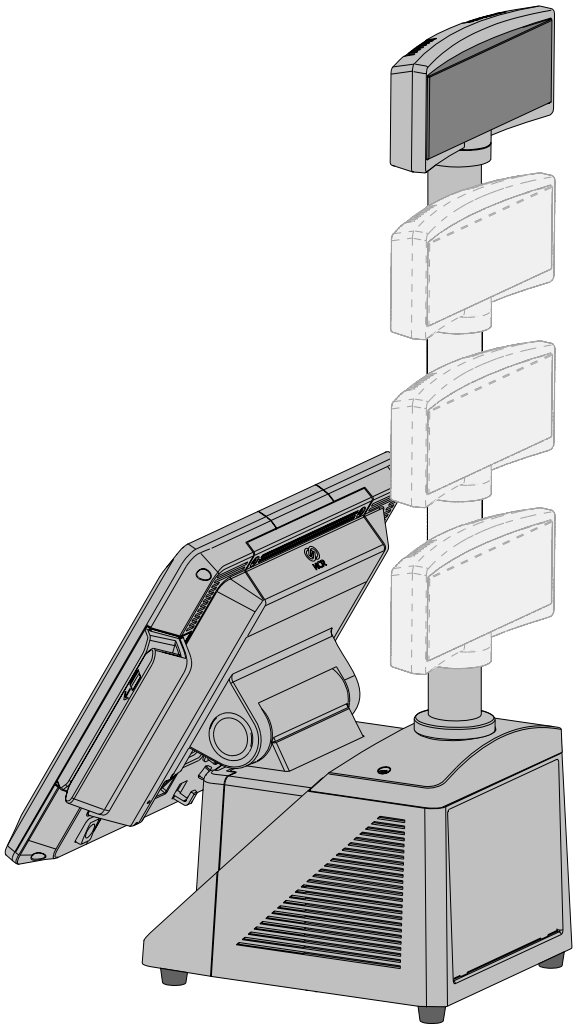


Integrated Customer Displays

The 7403 supports a variety of integrated VFD and LCD customer display.



There are four post options for the 5975 display, available in 4 inch increments



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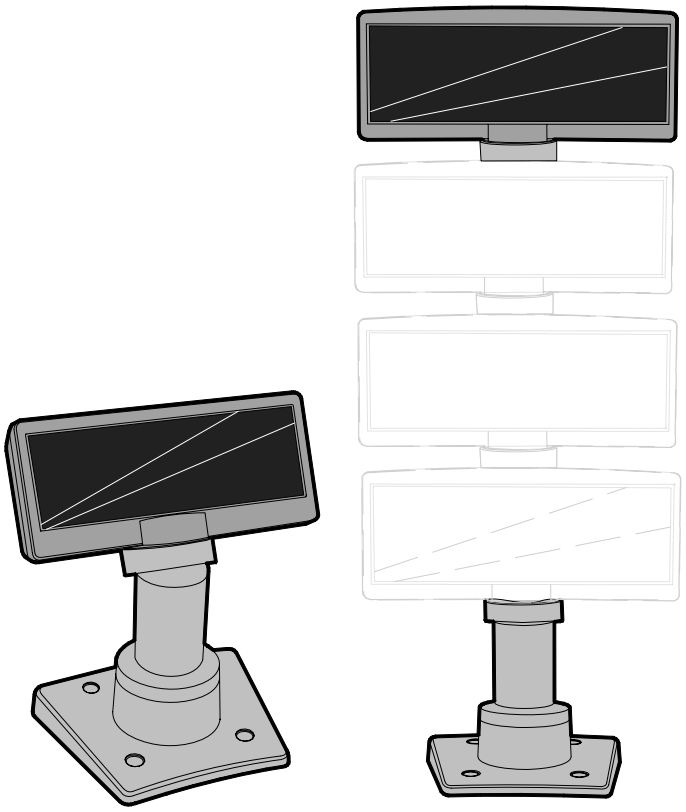
Remote Customer Displays

NCR 5975 2x20 VFD Customer Display



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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

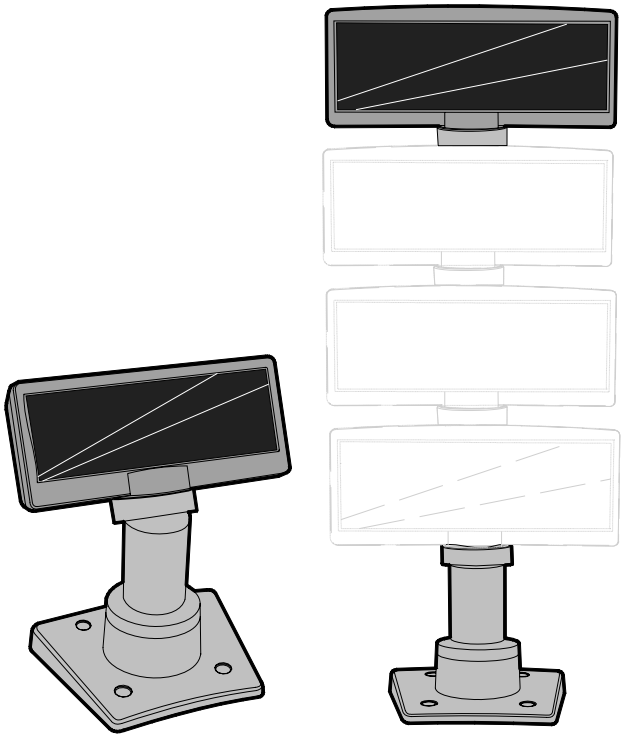
- Display
  - 2X20 Character Vacuum Fluorescent Display (VFD)
  - 7X9 pixel characters
  - Character height
  - Minimum - 9mm
  - Maximum - 11mm

- 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

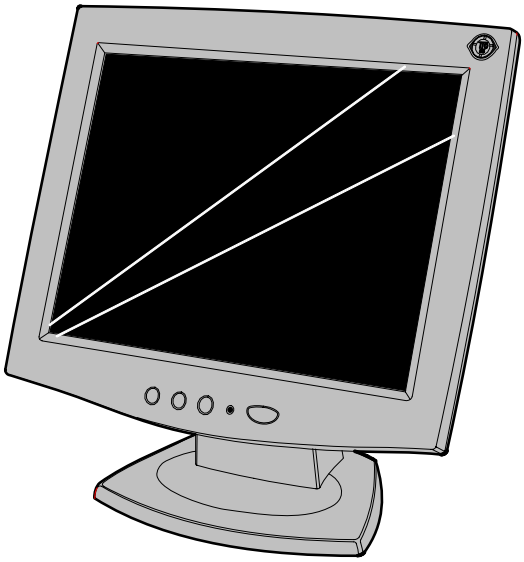
Character Sets

- 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

5942 12.1-Inch Color LCD



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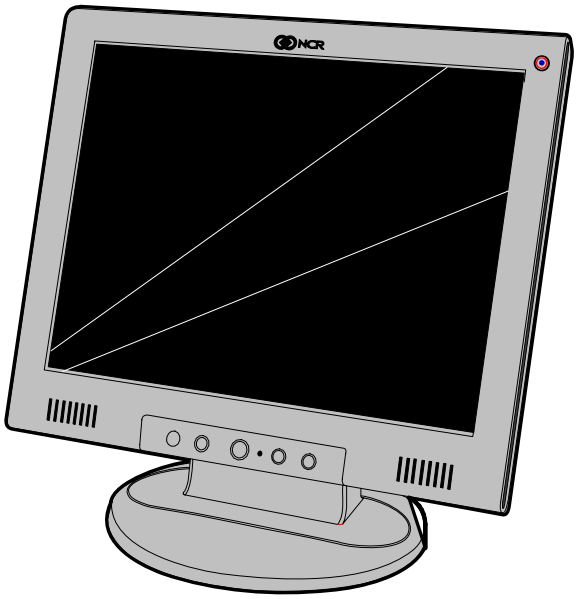
The 5942 12.1-Inch LCD is designed for customers who desire a color display and prefer the small footprint and ergonomic packaging of LCD technology versus traditional CRT's. Depending on the customer's requirements, this LCD display can be used either as an operator display or a customer information 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



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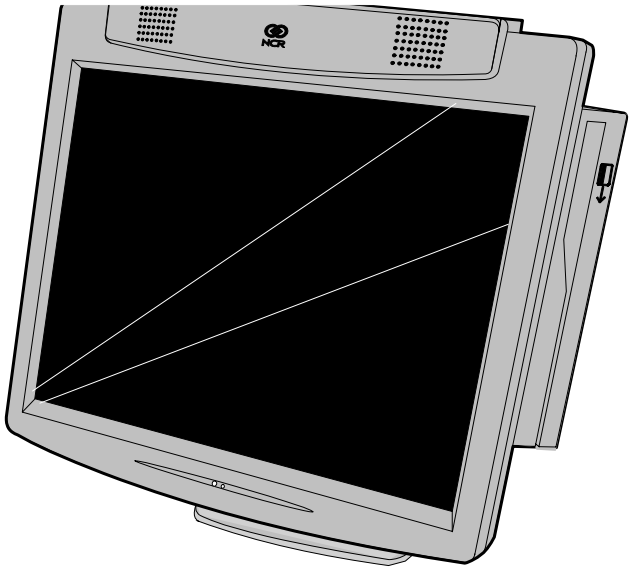
The 5942 15-Inch LCD features a high brightness dual-backlight active matrix LCD with analog interface which plugs directly into the standard VGA (CRT) port on the RealPOS 80*XRT* terminal. It includes a 1.5 meter VGA cable and built-in power supply with standard IEC AC power connector. The mount and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

5964 15-Inch Touch Screen



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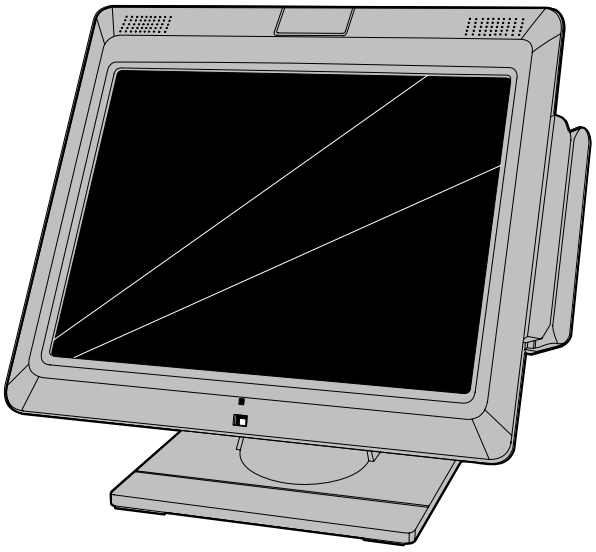
The NCR 5964-7xxx is a 15-inch XGA (1024x768) Liquid Crystal Display with either a resistive or capacitive Touch Screen for operator input.

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

5964 15-Inch Touch Screen



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The NCR 5965 is a 15-inch TFT Liquid Crystal Display with a capacitive Touch Screen. The display accepts industry-standard RGB video images from a PC motherboard and dynamically resizes VGA (640 × 480), SVGA (800 × 600), XGA (1024 × 768) & SXGA (1280 x 1024) @ 60Hz images to fill the entire viewable area.

Features

- Display size - 15” (diagonal)
- LCD Technology - TFT
- Native Format - XGA (1024 × 768) resolution
- Pixel Configuration - RGB vertical stripe
- Supported Colors - 16.2 Million (6 bits + FRC)
- Display text modes supported - SVGA (800 × 600 pixel), XGA (1024 × 768 pixel), VGA (640 × 480 pixel) & SXGA (1280 x 1024) images to full screen size.
- Moisture & dust sealed display (between touchscreen & display) – NEMA 12/IP54
- OSD controls to allow display adjustments
- Auto selection DC voltage input to allow connection of 12V or 24v option.
- VGA Interface
- DVI Interface
- Three standard USB-A ports (downstream)
- One mini USB-B port (upstream)
- USB PlusPower +12 VDC port
- Magnetic Stripe Reader- field installable, USB interface
- Energy Star and ACPI and VESA DPM compliance
- Integrated and remote mount options
- Integrated Stereo Speakers

Power Supply

The power supply provides power to the 7403 Terminal, as well as various retail peripherals through the powered connectors. The power supply is controlled by a logical on/off switch, which permits it to be disabled through software.

Other features include:

- Auto sensing for 115 VAC/230 VAC operation
- Cooling fan

Functionally, the terminal's ON/OFF switch controls the power supply control logic to activate the power supply. This switch does not control actual AC mains voltage applied to the power supply.

AC Input

The power supply operates with the following voltage ranges.

Range	Nominal Vrms	Minimum Vrms	Maximum Vrms	Input Current Max. Arms
Low (115)	100-127	90	136	5.0 A
High (230)	200-240	180	265	3.0 A

DC Outputs

The power supply has the following DC outputs:

Voltage	+3.3 V	+5 V	+12 V	-12 V	+5 VSB	+24 V
Minimum Current	0.7 A	1.0 A	1.35 A	0.0 A	0.0 A	0.2 A
Maximum Current	4.0 A	5.0 A	15.0 A	0.25 A	2.0 A	1.4 A

Note: The total continuous output power for all rails (3.3V, 5V, 12V, -12V, 5VSB, 24V) should not exceed 265W.

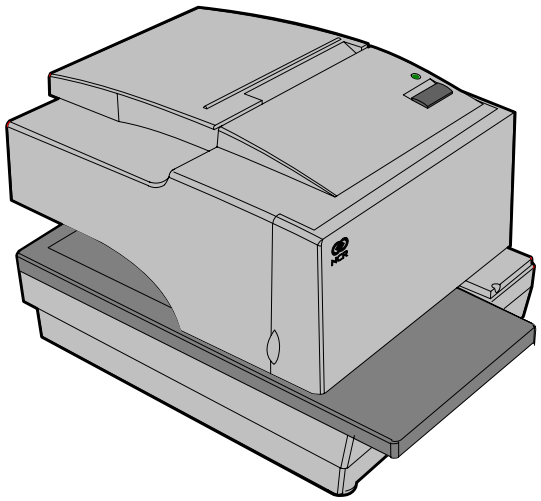
Maximum Rated Output Power

The maximum rated output power as defined as the continuous load is 265W. However, in the 7403, this power supply will be limited to supporting around 200W, to minimize thermal impact to the system.

Printers

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 not 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.



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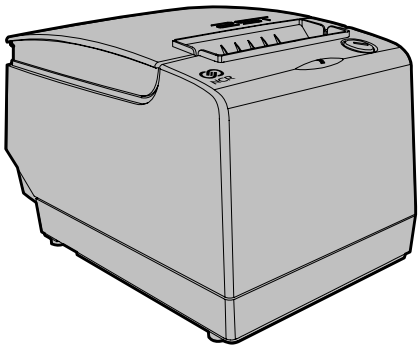
NCR 7198 Printer

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.



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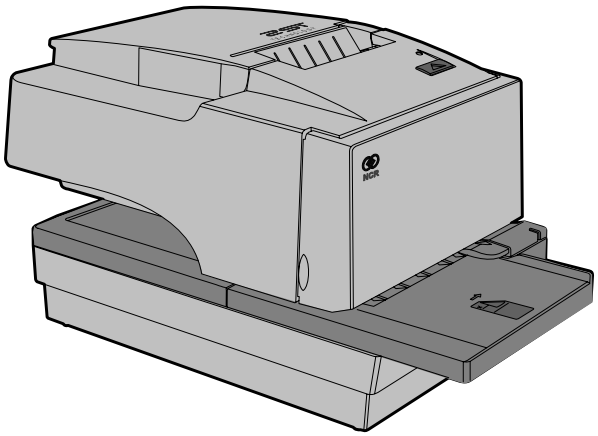
NCR 7168 Printer



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.

Power Management

The BIOS supports the supports the Advanced Configuration and Power Management Interface (ACPI) 3.0b specification. A key feature of ACPI is that the operating system, not the BIOS, configures and implements power management. The 7403 terminal supports the Global system power states defined by ACPI:

G3 Mechanical Off

A computer state that is entered and left by a mechanical means

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 7403 supports 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.

- S3 (Suspend to Ram): The S3 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 S3, power is only provided to the on-board USB ports.

  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.

The 7403 does not support the S4 (Suspend to Disk) sleeping state. Reference the ACPI Specification for details.

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.

Power State	S0 Working	S1 Standby	S2	S3 Suspend to RAM	S4 Hibernate	S5 Soft Off
Supported: Y / N	Y	Y	**N**	Y	Y	Y
Description	Fully Functional	-Video back light off -HDD off -Cache Flush - CPU halted		-Video back light off -HDD off -Cache Flush -Memory in slow refresh	-Video back light off -HDD off -Cache Flush -Memory data to HDD	Some devices remain powered by standby voltage (LAN, ME-AMT, USB) to allow wake-up
Power Supply Status	On	On		Powered Down**	Powered Down**	Powered Down**
Power Consumption*	TBD	TBD		TBD	TBD	TBD
Wake Options:						
Power Switch	N/A	Y		Y	Y	Y
Touch	N/A	Y		Y	N	N
Motion	N/A	Y		N	N	N
USB Keyboard	N/A	Y		Per O/S	N	N
USB Mouse	N/A	Y		Per O/S	N	N
LAN (magic packet)	N/A	Y		Y	Y	Y
RTC Alarm	N/A	Y		Y	Y	Y
Serial Port (RI)	N/A	Y		Y	Y	Y

*** Power consumption based on the following configuration with no peripherals (Celeron 575 , one 512MB DIMM, one HDD)**

Wake on LAN

The NCR Gold Drives are set up for Wake on LAN from *Magic Packet* (i.e. specific MAC address) and from *Directed Packet*. No driver configuration is required.

The default is to only wake from standby. To be able to wake from Power Off change the BIOS setting *Chipset → South Bridge Configuration → Gbe Wake Up from S5* to **Enabled.**

Chapter 2: Installing the Terminal

Introduction

The 7403 is fully assembled at the factory. This chapter discusses how to install a standalone terminal. For information about installing optional external peripheral devices see the *Installing Optional Remote Peripherals* chapter.

There are also several feature kit options that can be integrated in the terminal. For installation information about these please see the Kit Instructions for each. They can be downloaded from the Retail IP 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 **Kit Instructions** icon.
3. In the **Kit Title** field, enter the *Kit Title*.

   Example: *MSR*

   or

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

   Example: *7403-K454*
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 then select the *Save Target as...* option.

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

1. In the **Class** drop-down list, select the *Class* of the terminal.

   Example: *7403*
2. Select **Search.**

Installation Summary

- Remove the terminal from the shipping packaging and verify the hardware configuration.
- Connect the peripheral and communication cables.
- Attach the Power Cord to the system and to an AC power source.
- After power is applied to the terminal the Power-up self-tests run to verify basic functionality.
- ROM-based setup should be used to configure network options. Full configuration depends upon the system server and the management web site.

Installation Restrictions

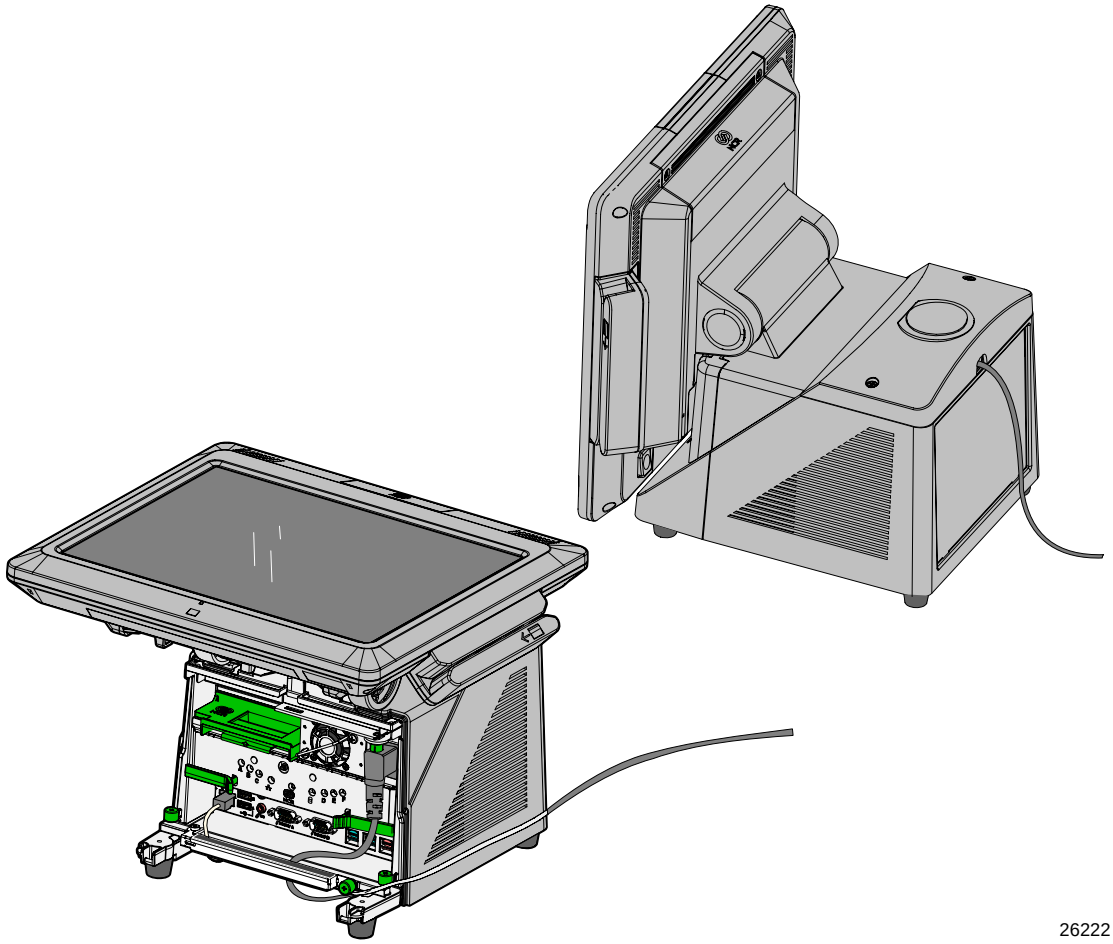
- Before installing the terminal, read and follow the guidelines in the *NCR RealPOS 70 Site Preparation Guide* (B005-0000-1873) and the *NCR Workstation and Peripheral AC Wiring Guide* (BST0-2115-53).
- Install the terminal near an electrical outlet that is easily accessible. Use the power cord as a power-disconnect device.
- Do not permit any object to rest on the power cord. Do not locate the terminal 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 terminal.
- If the power cord is replaced, it must be replaced with the same type of cord.
- Do not route the power cord through openings with sharp edges.

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

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

Connecting the External Cables

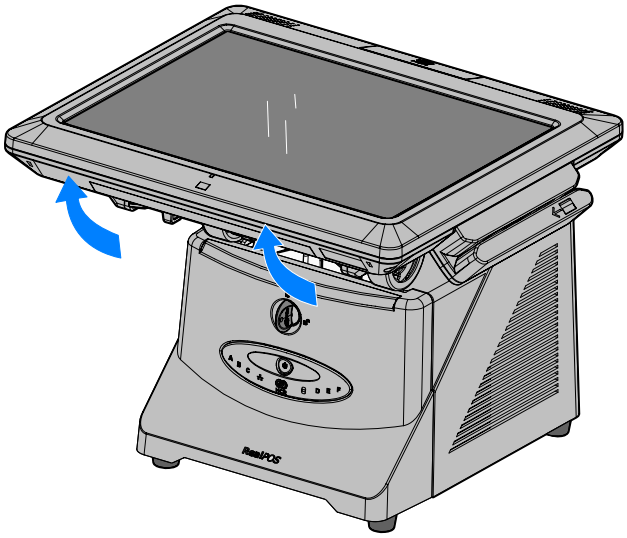
Most external cables connect to the I/O Panel and route under the terminal, which is located behind the Front Base Cover. Others connect to the Backplane Board and are routed out the Base Rear Cover. This section shows how to gain access to the connectors and how to secure the cables.



26222

Accessing the I/O Panel

1. Tilt the Display Module.



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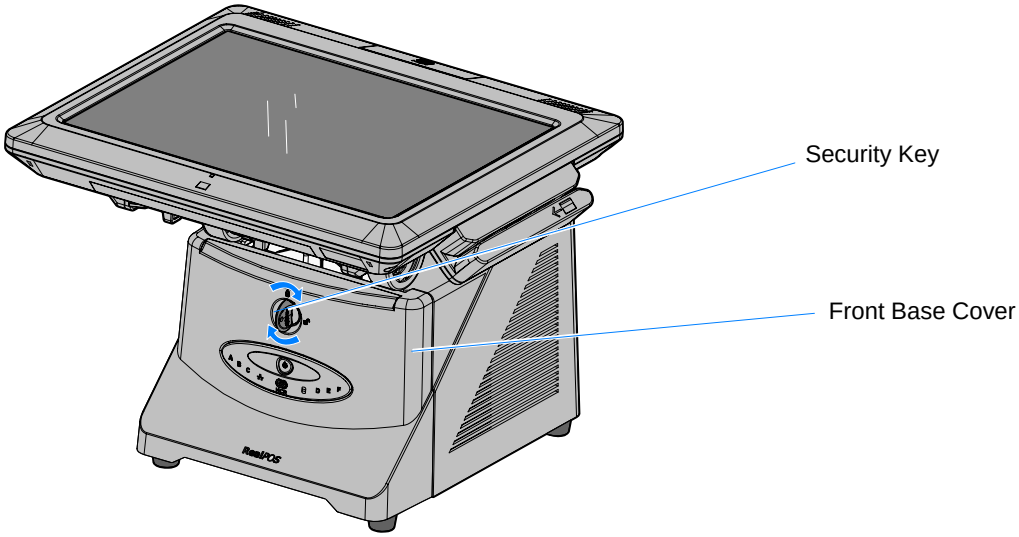
2. Remove the Front Base Cover.
   a. Insert the Security Key and turn it 90 degrees clockwise.



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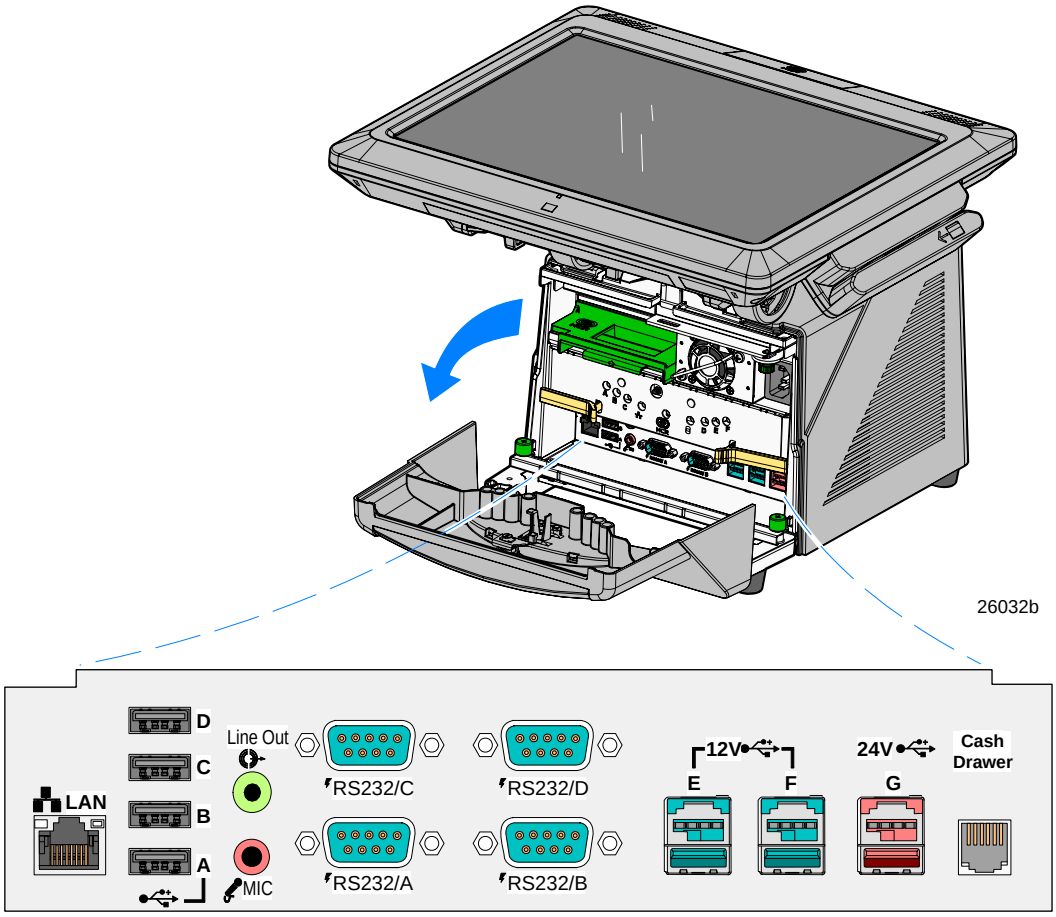
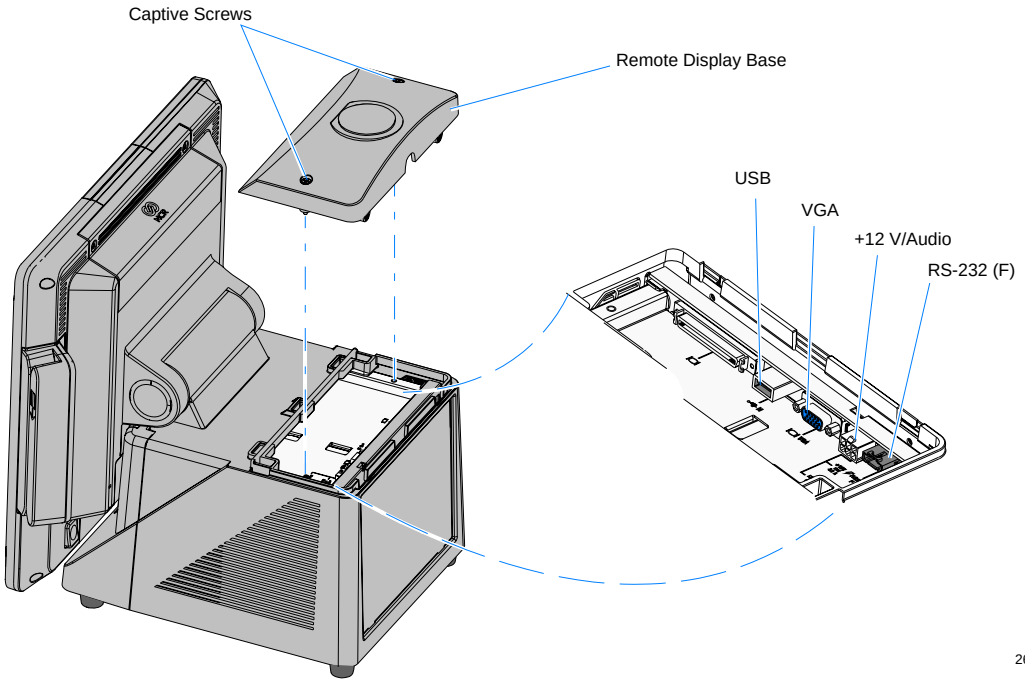
b. Pivot the top of the Front Base Cover toward the front of the unit and remove it from the terminal.



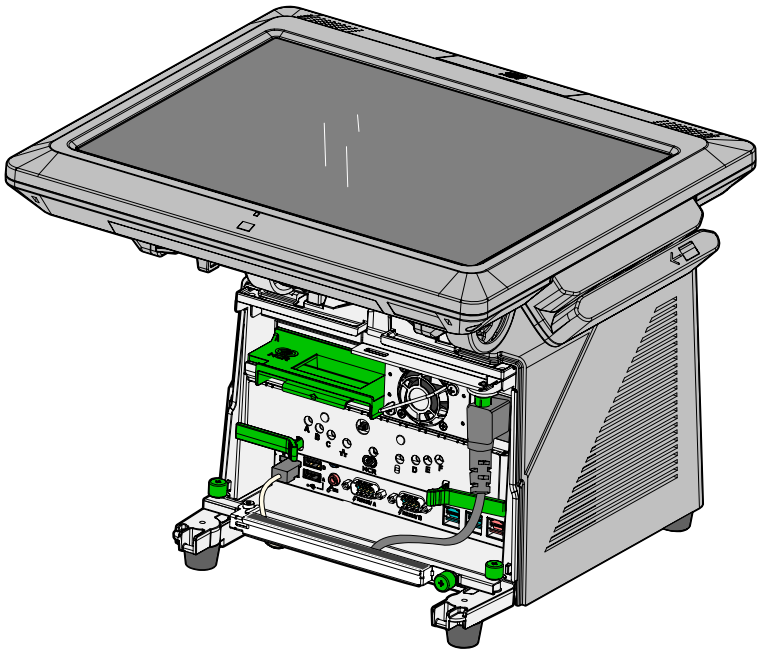
Accessing the Backplane Connectors

1. Loosen the Captive Screws (2) and remove the Remote Display Base.



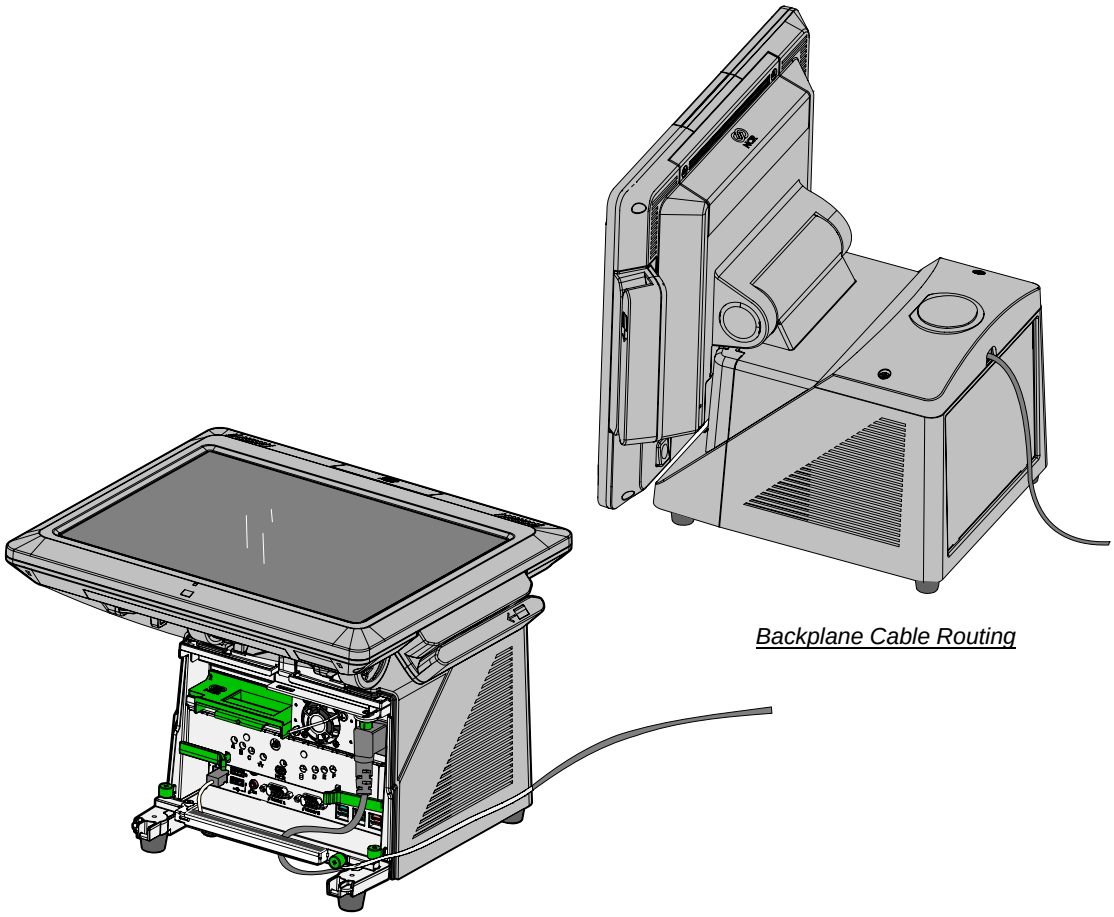
AC Power Cord Connector

1. Connect the Power Cord to the system and to an AC power source.
2. Secure the cable in the Cable Clamp.



Cable Routing

The cables from the I/O Board are routed under the base and out the bottom of the unit. Cables from the Backplane Board are routed out an opening in the Cover and down the back of the terminal.



Backplane Cable Routing

I/O Board Cable Routing

26222

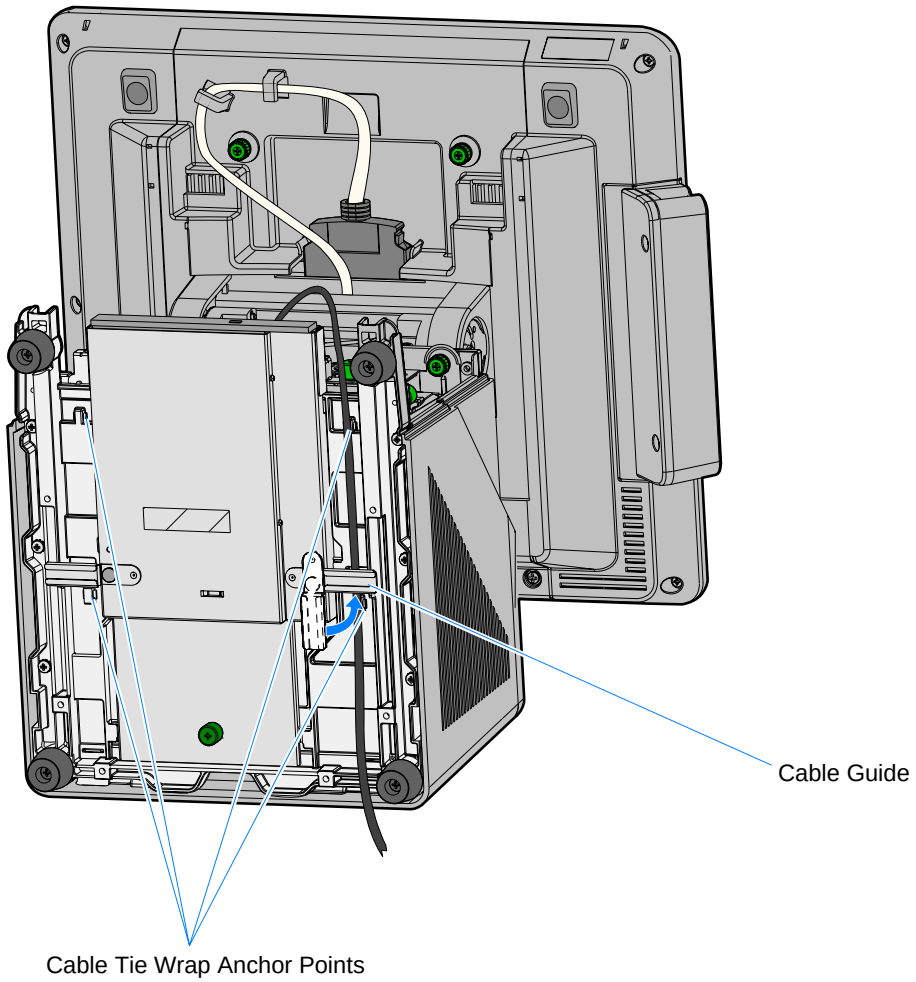
I/O Board Cable Routing

There are two ways to secure the cables from the I/O Board.

- With DVD-ROM Drive
- Without DVD-ROM Drive

Terminal Configured with a DVD-ROM Drive

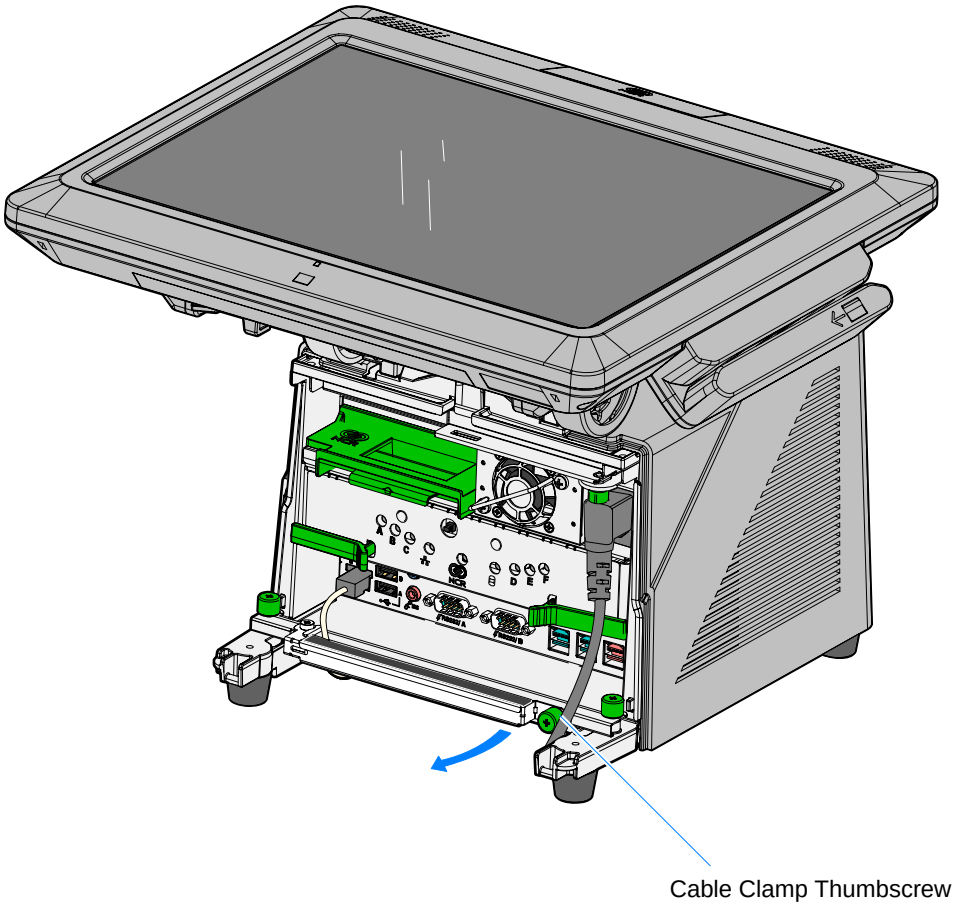
If configured with a DVD the cables are routed in the two channels in the bottom of the Base. Route the cables in the channels and under the closed pivoting latches. Secure the cables to the anchor points using Tie Wraps as necessary.



Terminal without a DVD-ROM Drive

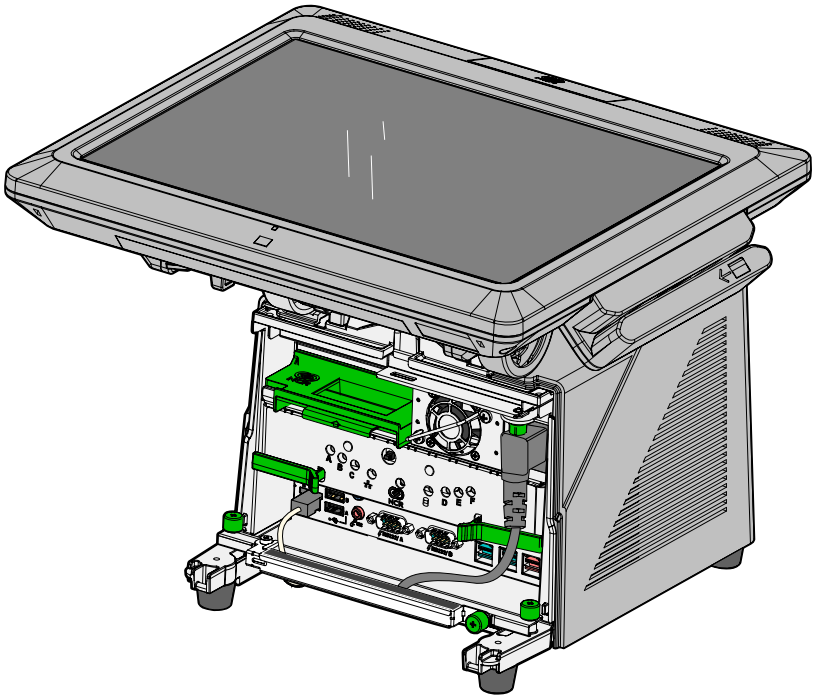
If there is no DVD present then there is a Cable Clamp on the front of the Base chassis that is used to secure the cables.

1. Loosen the Cable Clamp Thumbscrew
2. Pivot the clamp away from the terminal.



26236b

3. Route the cable between the clamp and base.

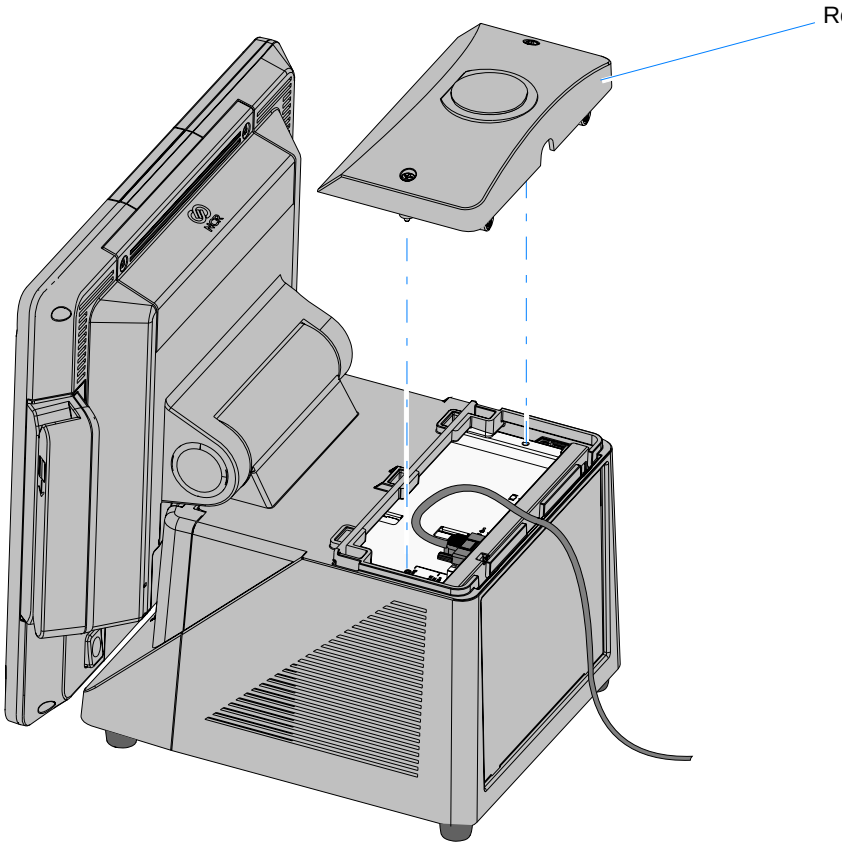


26135b

4. Route the cables in the two channels in the bottom of the Base (as shown on the previous page) and secure them with Tie Wraps as necessary.
5. Secure the Cable Clamp Thumbscrew.

Backplane Cable Routing

1. Remove the Remote Display Base
2. Connect the cable(s) to the Backplane Board.
3. Route the cable(s) through the opening in the rear of the cabinet and down the back of the terminal to the peripheral device.



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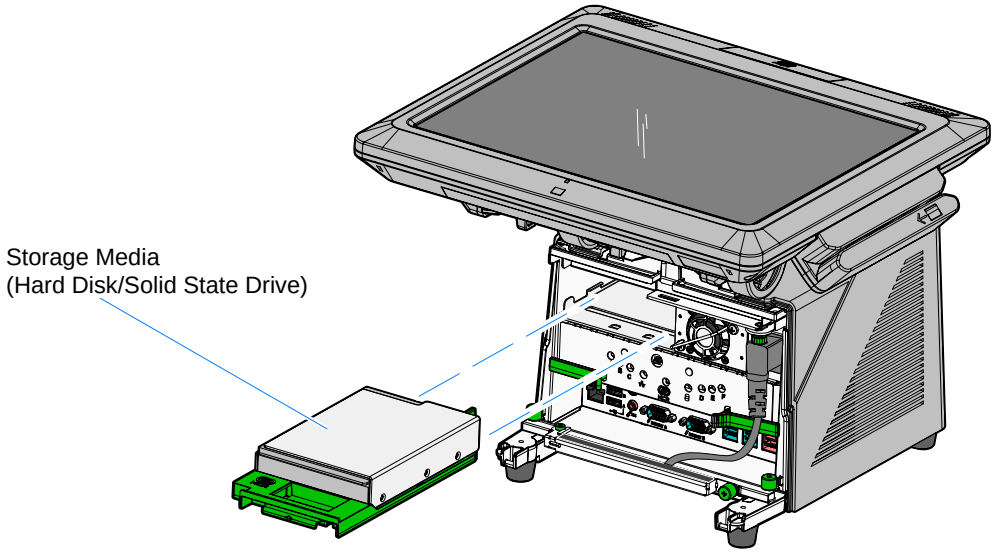
Removing the Storage Media

Squeeze the latch on the green Storage Media Bracket and pull the assembly out of the chassis, which also disconnects it from the Backplane Board.

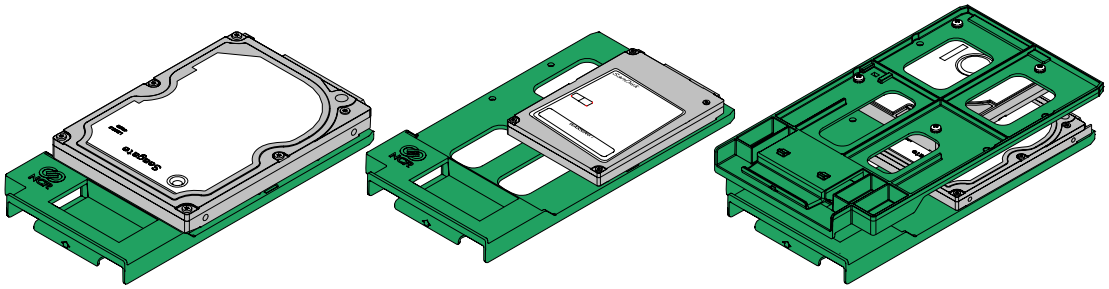


26034b

There are three Storage Media options available for the 7403. Some devices are a large format (3.5”) and some are a small format (2.5”).

- Hard Disk Drive (Large format)
- Solid State Drive
- Dual Hard Disk Drive (Small format) – used in RAID configuration. The top drive is inverted when installed in the 7403 terminal.

  Caution: Both disks must be re-installed in the same slots that they were removed from in order for Intel ME/AMT features to function correctly.



Hard Drive (Large Format) Solid State Drive Dual Hard Drive (Small Format)

26169a

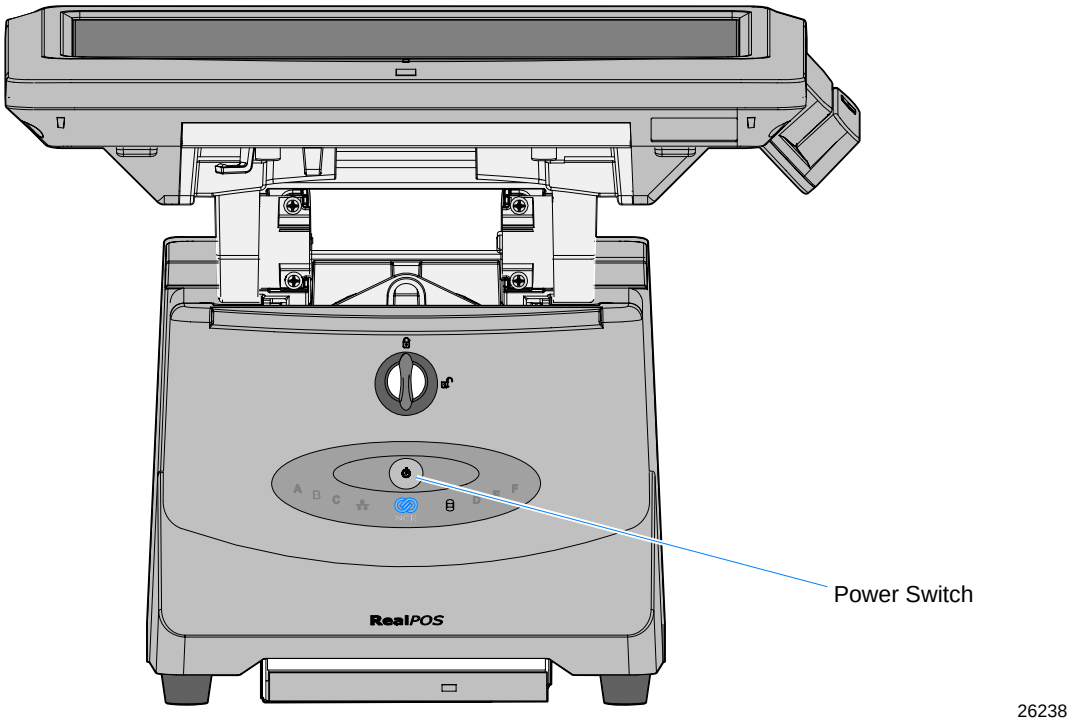
Powering Up the Terminal

Terminal On/Off Switch

The Terminal On/Off Switch is located on the Front Base Cover. This is a logic switch only.

Power Button Override

When the Power Button is held for five seconds the system shuts down immediately. This function can be disabled in the BIOS. In the Boot Menu set the **Power Button Override** option to *Disabled*.



After power is applied to the terminal the Power-up self-tests run to verify basic functionality. ROM-based setup should be used to configure network options. Full configuration depends upon the system server and the management web site.

Default Boot Order

The factory-default boot order is LAN, CD-ROM, HDD. There is no flex disk drive option. The CD / DVD drive tray is front-accessible. For security purposes, the drive can be removed from the boot order and/or disabled entirely in the BIOS, which can be password protected.

An external USB CD-ROM has been certified for staging and maintenance. Other storage devices such as external USB thumb drives may also be used, but none are currently certified, released or supported. To request certification and support for third-party devices, submit your request through the Third-Party Product website (*http://www.rsg.ncr.com/tpp/*).

Keyboard support

The RealPOS 70XRT does not support legacy NCR keyboards and DynaKeys that require PS/2 connections. USB keyboards are supported

Connecting peripherals

All peripheral ports are color-coded and labeled. All feature self-healing fuses (except for the 24V USB printer port). If they become shorted functionality is restored when the terminal is rebooted. The 24V USB port has a fuse which can be replaced in the field. RS-232 ports can be configured for 5V, 12V, or RI operation.

Calibrating the Touch Screen

Calibrate the touch screen as part of the installation process. See the *Touch Screen Calibration* chapter.

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

Chapter 3: Touch Screen Calibration

Installing and Calibrating the Touch Screen

Be sure to observe for the following Touch Screen calibration guidelines:

- Calibrate the touch screen as part of the installation process.
- Recalibrate the touch screen when the system is installed at its final location.
- Recalibrate whenever the terminal is moved to a new location.
- Recalibrate the touch screen anytime the system has been disassembled for servicing.
- Download the Calibration software from the NCR website.

  http://www.ncr.com

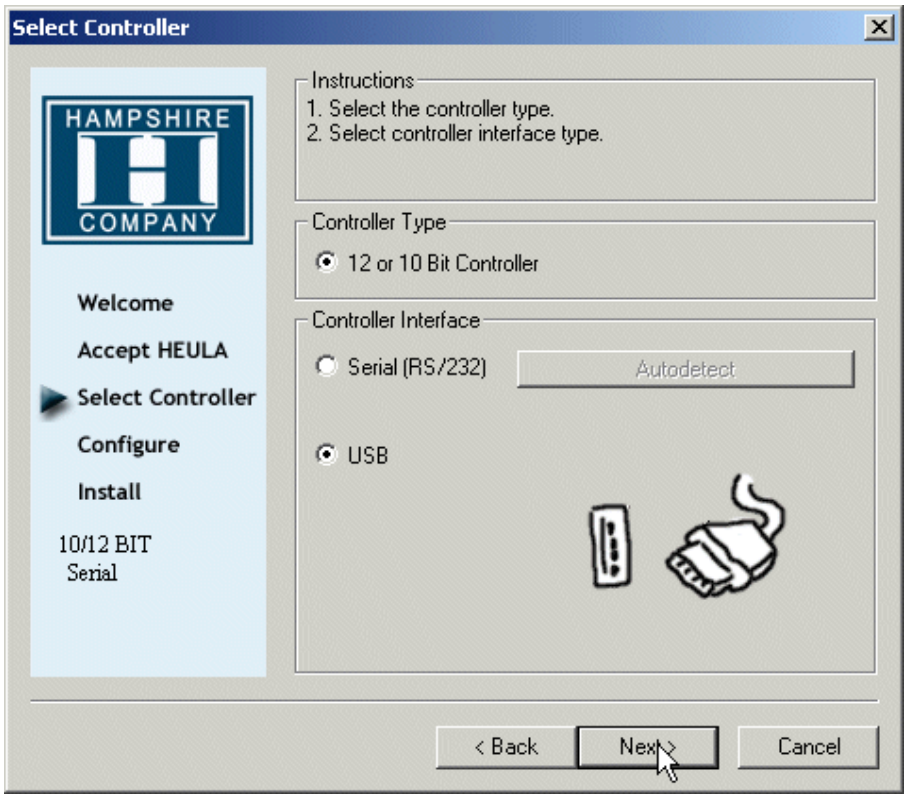
  a. At this site, select **Support**.
  b. Under Related Items, Services; select **Drivers and Patches** → **Retail Support Files** → **Retail Platform Software** → **7403**.
  c. Download the Touch Driver (version 6.31b or later).

Installing the Driver

Note: If you have a previous version of another touch screen driver loaded on your system, you must completely remove it, using the *TSUN.EXE* uninstaller from the latest driver package in the `\common` directory, before continuing with this installation process.

1. Extract the Hampshire driver installation files into to a working directory on the host terminal.
2. Locate and run the TSHARC USB **Setup.exe** program.
3. Welcome screen > **Next**
4. License Agreement screen > Accept, **Next**

5. Use the USB Controller Interface > **Next**.



6. Setup is ready to install > **Next** > **Finish**

   At the completion of the install program the driver is loaded and functioning. You do not have to restart your system.

Calibrating the Touch Screen

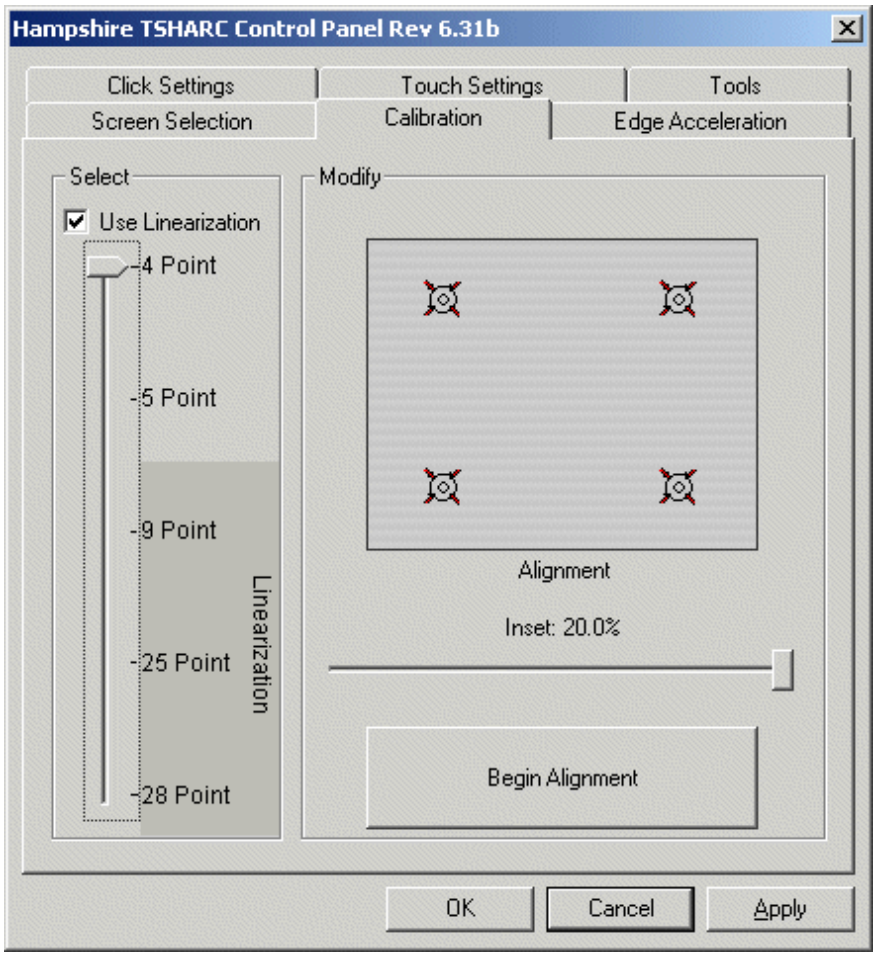
1. Run the Hampshire Control Panel

   Run → Programs → Hampshire TSHARC Control Panel

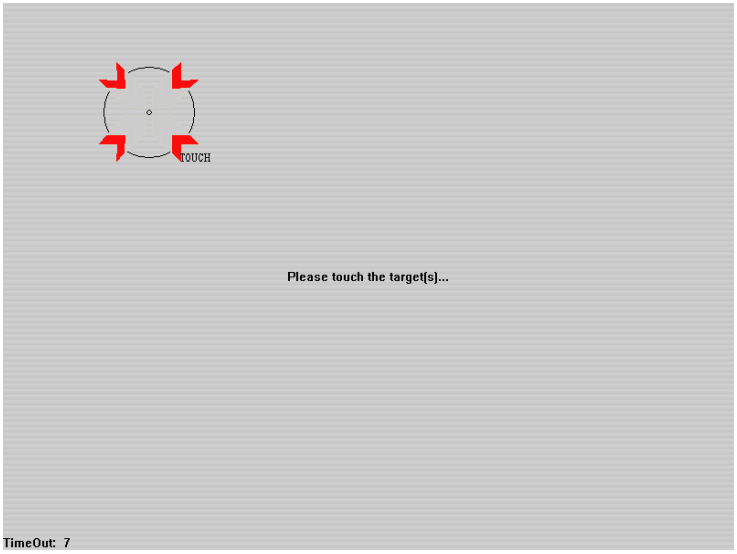
2. touch the **Calibration** tab.

   The *Calibration* Tab provides a screen to select which type calibration you prefer. The touch points default to 4-Point Calibration (4 points on the screen to touch). Using more points results in a more accurate calibration. The *9-Point Calibration* (and higher) includes Linearization data. *Inset* sets the distance from the edges of the screen that you can successfully touch. The lower the *Inset*, the more accurate the calibration is, especially in the corners of the screen. However, it may be difficult to touch the targets if the *Inset* is set too low.

   Choose which calibration you prefer and select the **Begin Alignment** button.



a. Touch the center of the target. Pull your finger a few inches away from the screen when you see the *Release* message.



For best results:

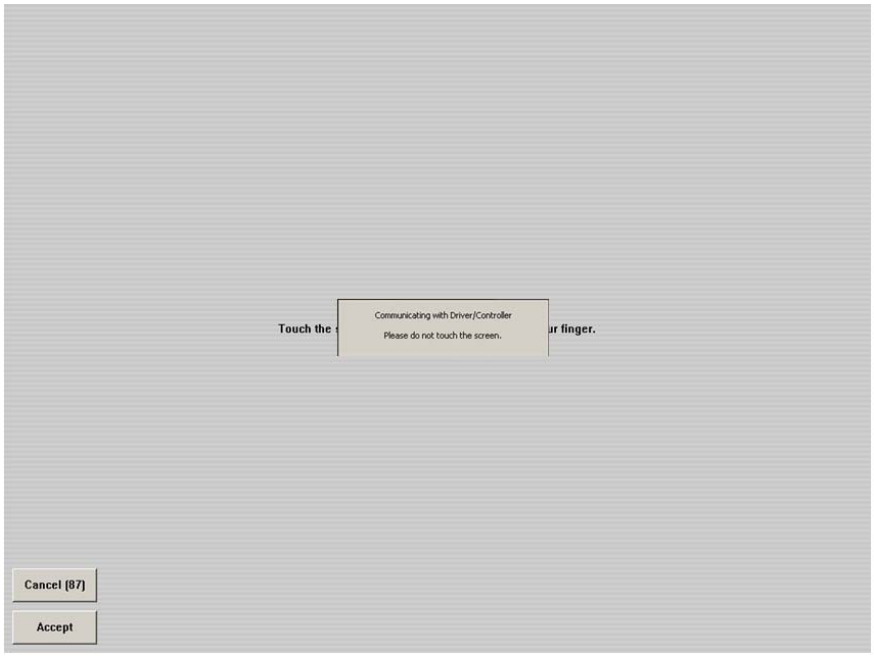
- Face the monitor directly.
- Perform the calibration in the position (sitting or standing) that you normally expect to use the touch screen.
- Touch the calibration target firmly and precisely with your fingertip. During calibration, be careful to keep your fingernails and other fingers away from the touch screen as you touch each target.

b. Repeat the process for each target location as they pop up.

c. After all targets have been touched a test screen appears. Touch the screen in various locations to verify the calibration results. Select **Accept** if you are satisfied with the results. If not, repeat the process.

Note: Do not touch **ESC** to exit from this screen.

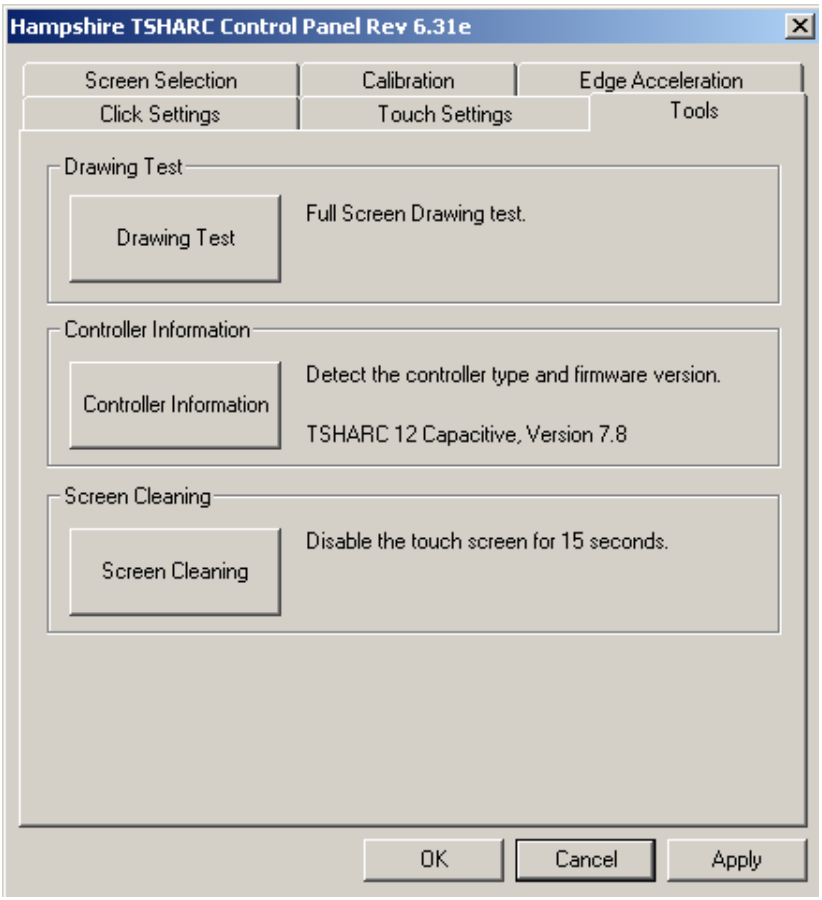
d. After touching **Accept** you are warned to not touch the screen.



Touching the screen during this time can cause the Hampshire Application to hang. This screen will automatically close after the touch controller has completed communicating. The time varies depending on the number of calibration points that are used. When complete, the system returns to the desktop with the TSHARC Control Panel displayed.

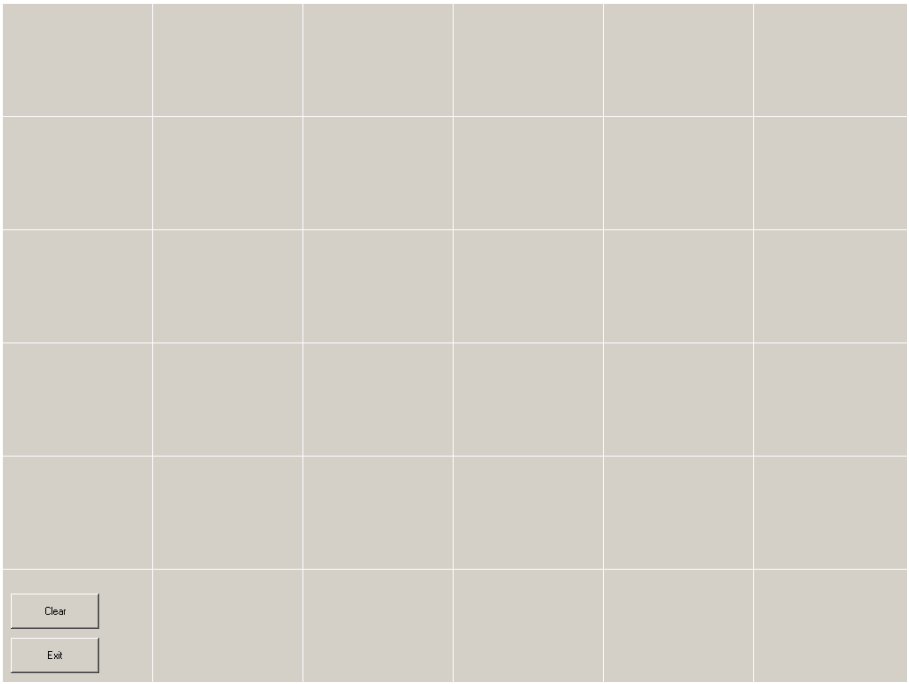
Verifying the Calibration

1. Touch the **Tools** tab.
2. Touch the **Drawing Test** button.



3. Test the calibration on the draw screen.

   Touch the screen in various spots and trace each of the horizontal and vertical lines, including the border around the screen.



   In this test, all touches are persistent, including touch downs (green dots) and touch ups (red dots).

   After tracing the lines, review the drawn lines to make sure they closely follow the underlying pattern. Pay close attention to the edges of the display and the corners since this is where an incorrect calibration is most noticeable. If a line or point appears to be outside the pattern, try pressing the area to see how far the cursor is from the touch point. If the registered touch is greater than 1 cm away from where the touch occurred, repeat the calibration.

   Touch **Exit** to close this screen and to return to the Hampshire control panel. Touch the **Calibration** tab to repeat the calibration procedure or touch **OK** to close the Hampshire application.

Optional Settings

After the touch screen is calibrated, adjust the other features to meet your personal preferences.

- Double-Click Option
- Right-Mouse Click
- Touch Modes
- Touch Sounds
- Tack Bar Pull Up
- Touch Offset

Chapter 4: Installing a Secondary (Dual) Display

The Motherboard uses an integrated video controller; the Mobile Intel 4 Series Express Chipset Family. This controller provides a Notebook port (Primary LCD) and a Monitor port (VGA) on the Backplane connector row.

These two ports can provide either a single display mode (Notebook or Monitor) or a dual display mode (Notebook and Monitor). Dual display mode can be a *clone* (same video data displayed on both displays) or an *extended desktop* (the desktop spans across both displays). The Notebook display (LCD) is the primary display in most cases.

Configuring the Graphics Controller

This section talks about how to configure dual displays when using the *Graphics Media Accelerator Driver* or using the *Graphics Options* controls directly from the Desktop. The controller is included in the NCR Gold Image.

There are three ways to open the Intel® Graphics Media Accelerator Driver window:

- Right click the Desktop. Then from the menu select:
  Graphics Properties.
- Click the *Intel Graphics Accelerator Driver for Mobile* icon in the Task Bar. Then from the menu select:
  Graphics Properties.
- From within the Windows Control Panel, select the **Intel(R) GMA Driver** icon.

  Note: The display selections in the Intel Control Panel vary, depending on what displays are connected. The example above shows an integrated LCD primary (Notebook) and an LCD secondary (Monitor) connected.

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.

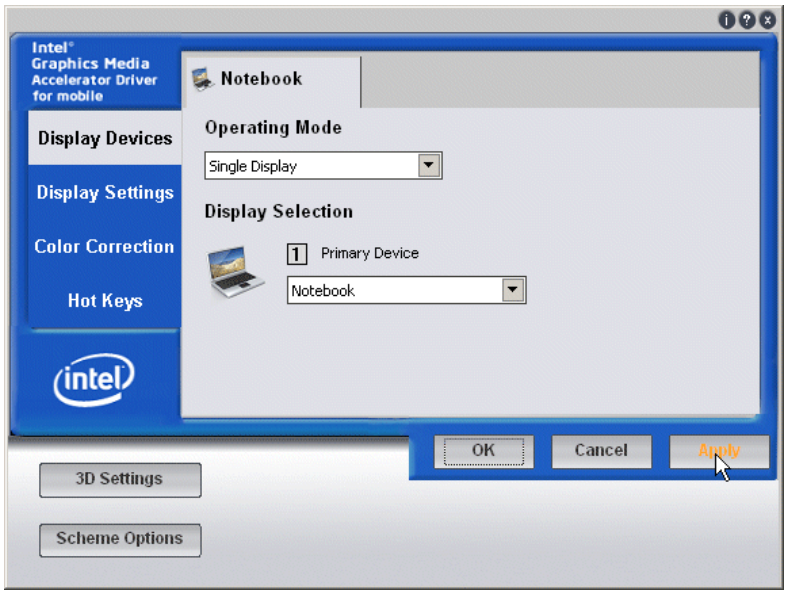
Configuring the Graphics Controller

The following display options are available in the Intel Controller:

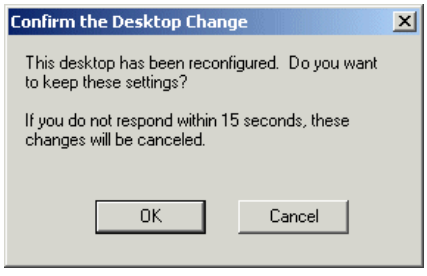
Mode	Description
Single Display	Single display (Notebook or Monitor) - The Monitor selection is only available when a VGA display is attached.
Twin	Notebook (LCD) and Monitor (VGA) displays with the same video content. Similar to the Intel Dual-Display Clone mode, except it is driven by a single pipe,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

Single Display Mode Setup

1. Select **Notebook** (or **Monitor**).
2. Select **Apply**.



3. Select **OK** within 15 seconds to accept the new settings.



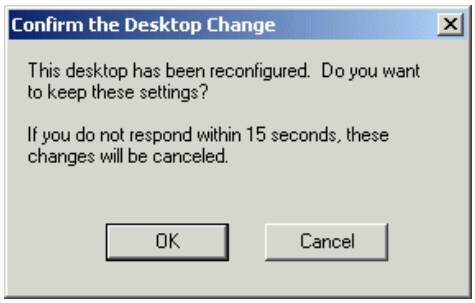
4. Select **OK** to close the driver control window.

Dual Display Clone Setup (Notebook and Monitor)

Note: *Twin Operating Mode* is set up the same as is *Dual Display Clone*.

1. Select **Intel(R) Dual Display Clone**.
2. Select the Primary Device: **Notebook** *or* **Monitor**.
3. Select the Secondary Device: **Monitor** *or* **Notebook**.
4. Select **Apply**.

5. Select **OK** within 15 seconds to accept the new settings.

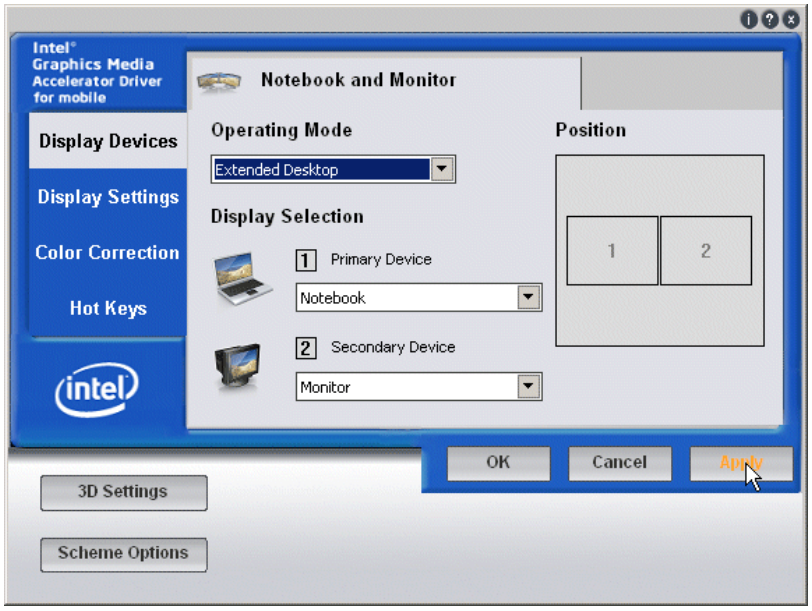


6. Select **OK** to close the driver control window.

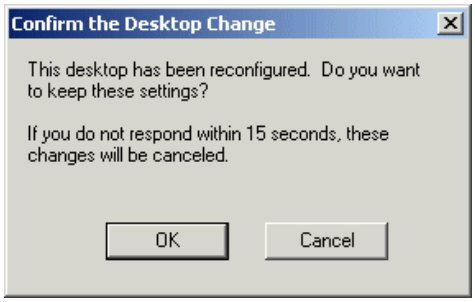
Extended Desktop Dual Display Setup (Notebook and Monitor)

Note: The 7403 display should be the **Primary** display. To verify this select **Start** → **Control Panel** → **Display**. Select the *Settings* tab to display the display IDs.

1. Select Extended Desktop
2. Select the Primary Device (1): **Notebook** *or* **Monitor**. (This display has the Start button and Taskbar)
3. Select the Secondary Device (2): **Monitor** *or* **Notebook**. (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.

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][F3]` - Notebook in *Single Display* mode

`[CTRL][ALT][F1]` - Monitor 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.

Chapter 5: Configuring AMT

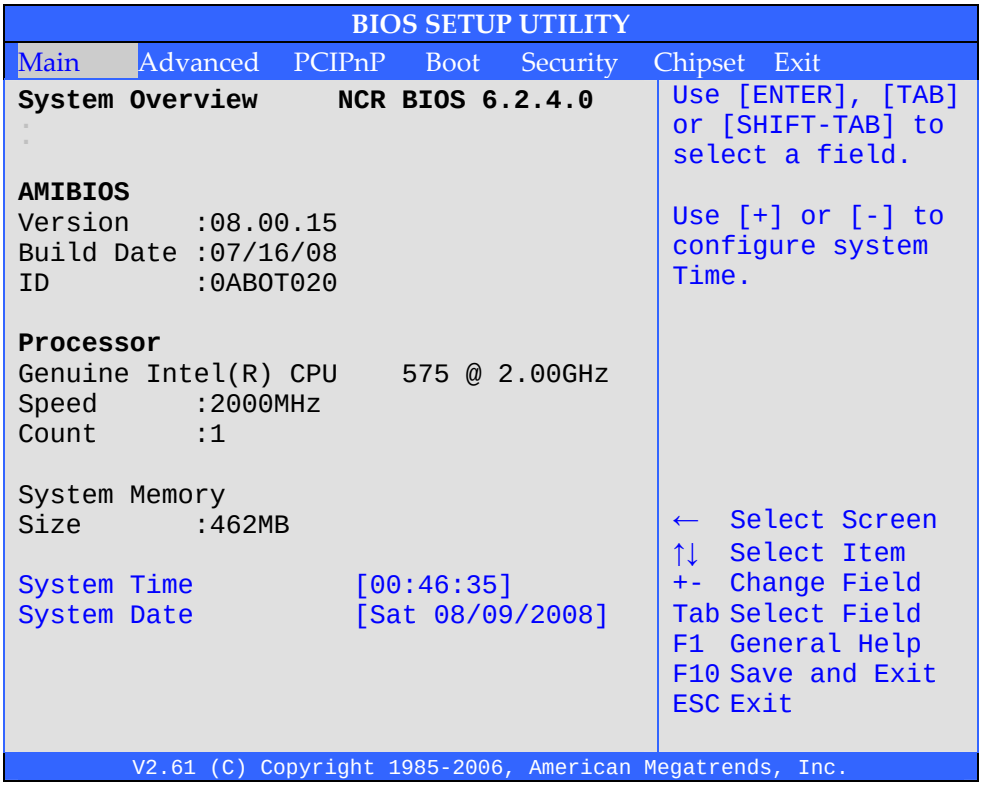
This chapter explains how to configure an NCR RealPOS 70XRT so it can be accessed remotely using Intel Management Technology (AMT).

Configuring the 7403 Terminal

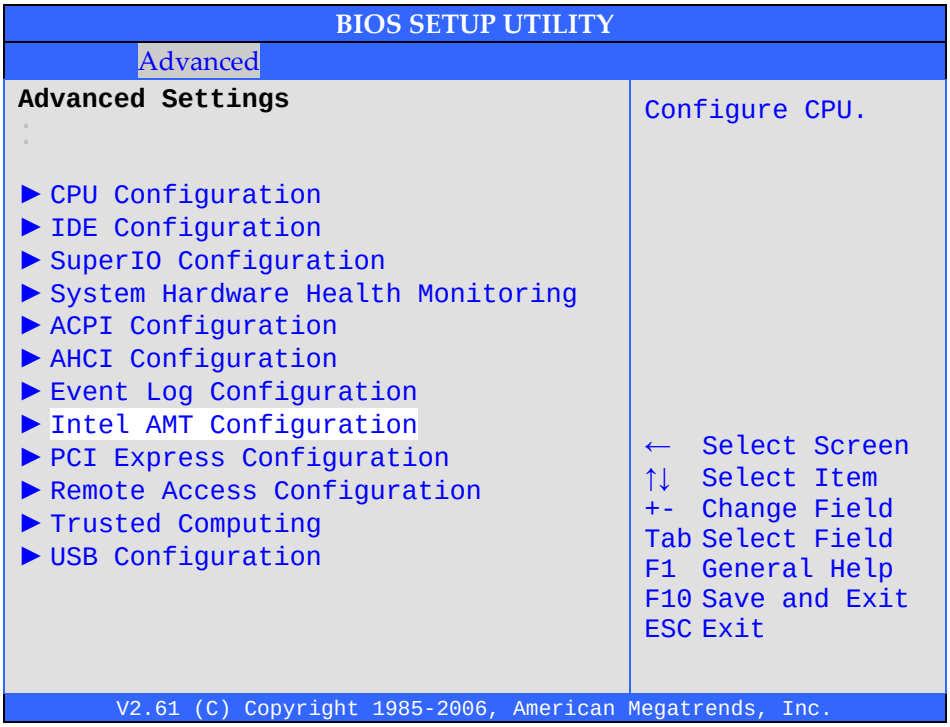
1. Re-boot the terminal.
2. When you see the message

   ```
   Press DEL to enter setup
   ```

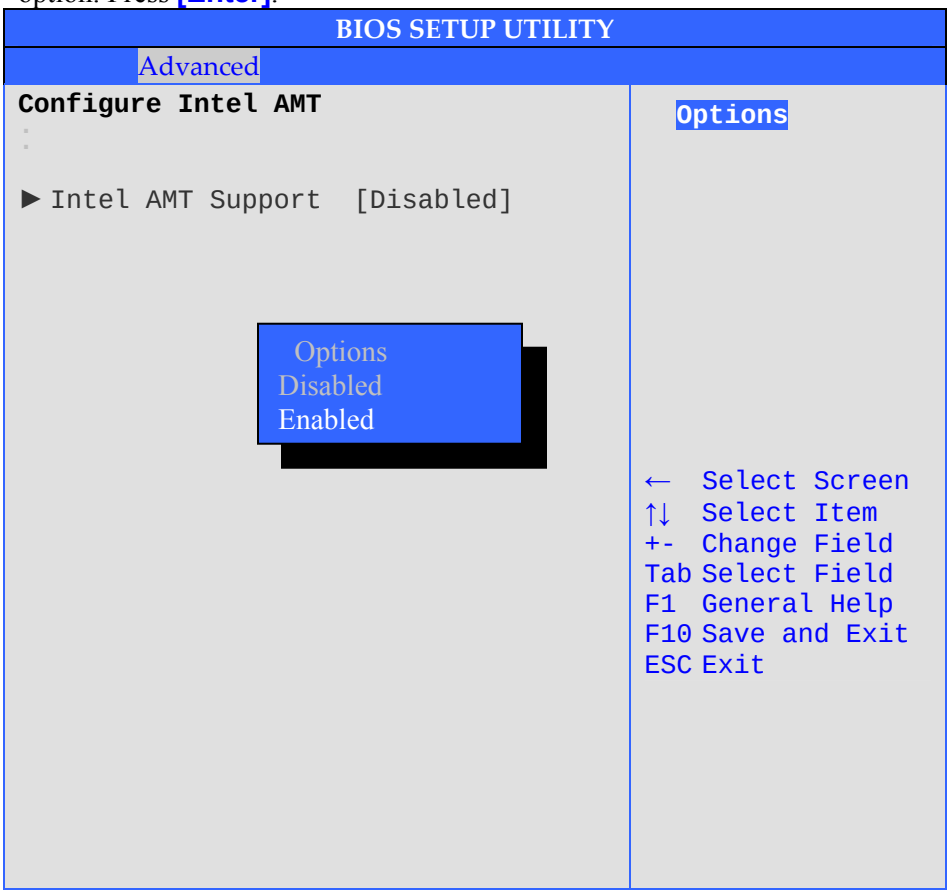
   press **[Del]** to start the utility.



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]**.

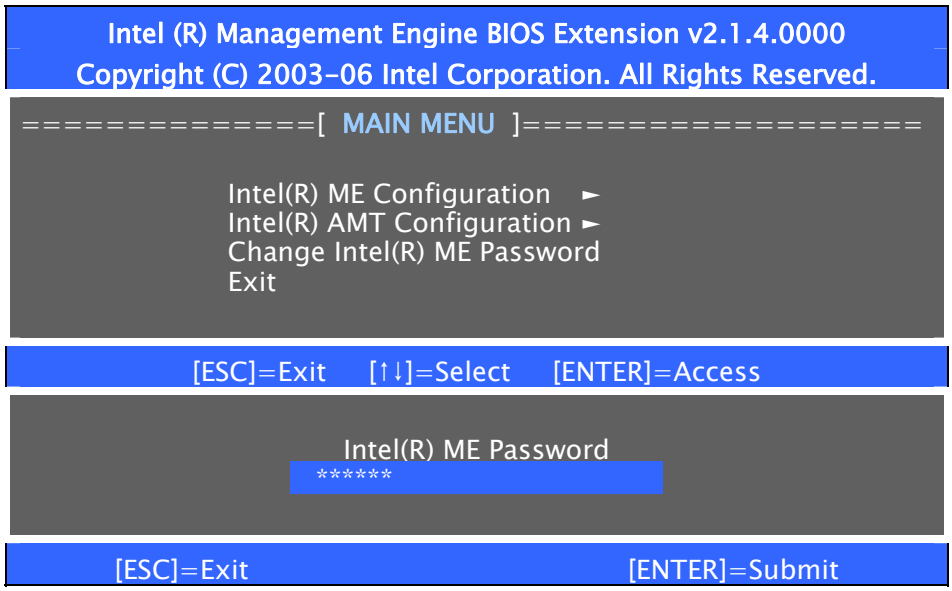


5. Press **F10** and **[Enter]** to *Save and Exit*.
6. During re-boot watch for the following message:

   `Press <CTRL-P> to enter Intel(R)ME Setup`

   This message occurs immediately after the NCR logo disappears. At that moment press **Ctrl-P**.

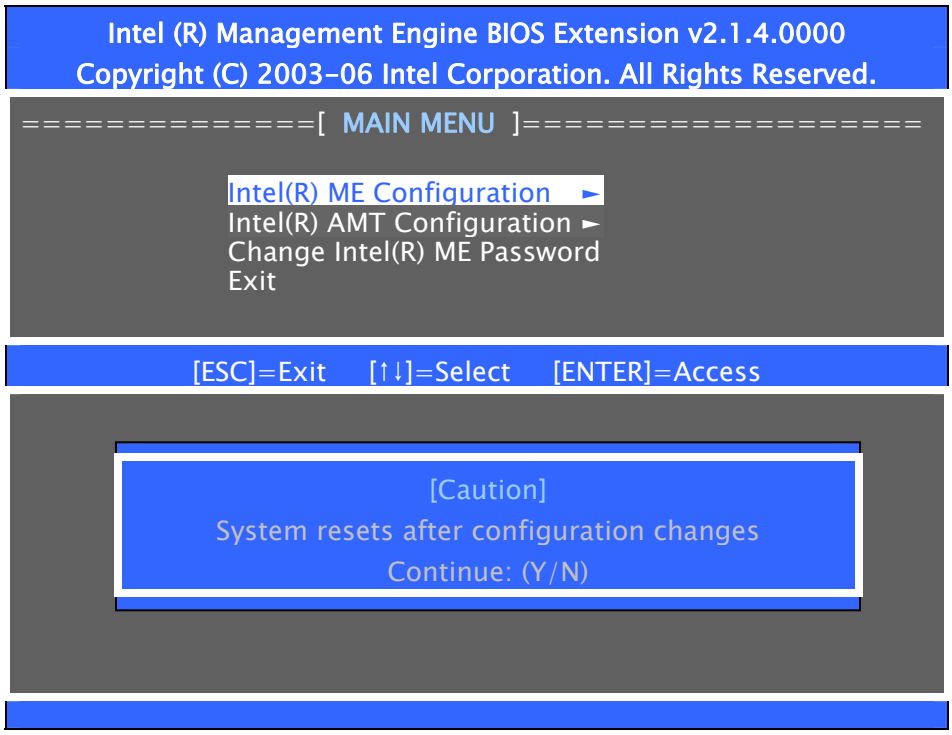
7. The Intel ® Management BIOS Extension is displayed. The first time this program is entered you must use the default password. Enter the default Intel ME Password (*admin* in all lower case) and press **[Enter]**.



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

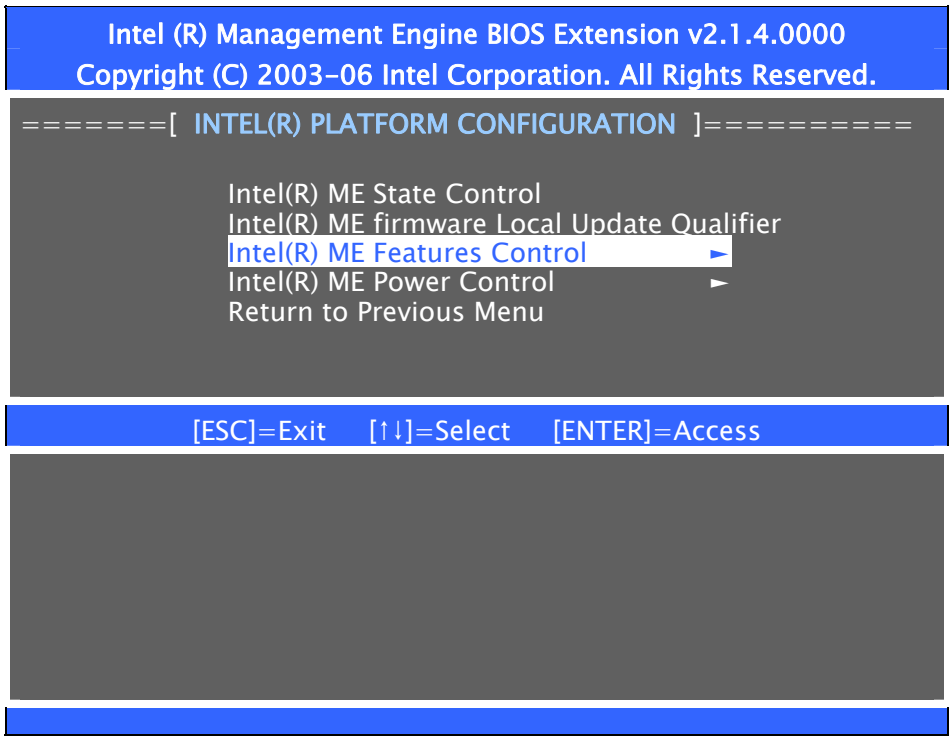
   You must enter the password twice for verification.

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

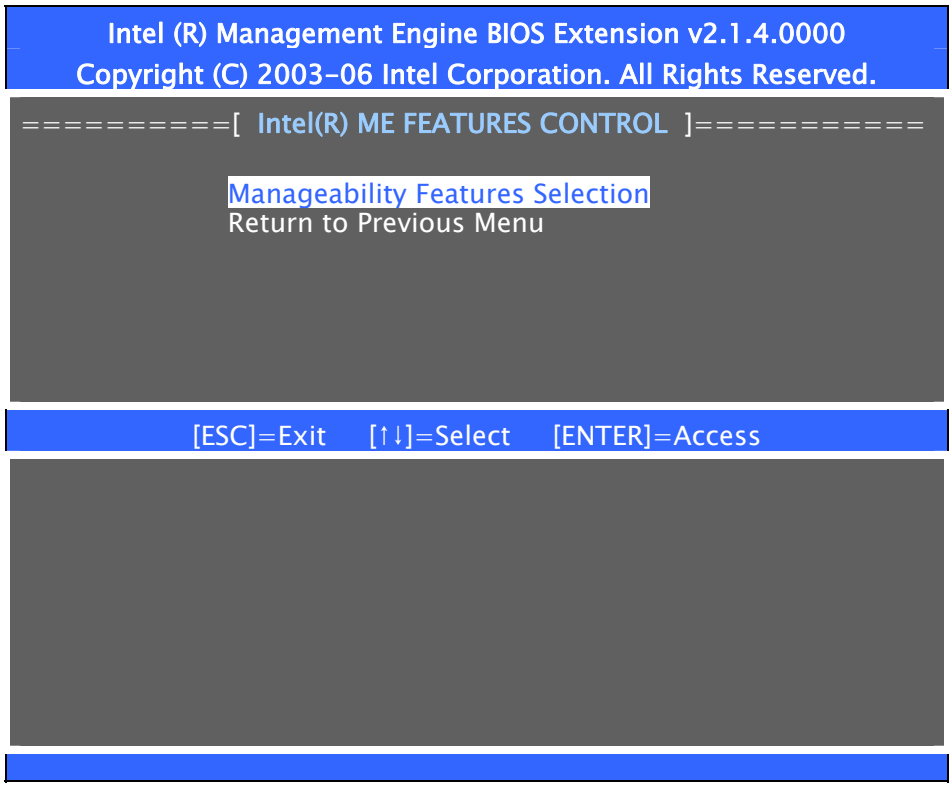


10. Enter **Y** at the warning message to continue.

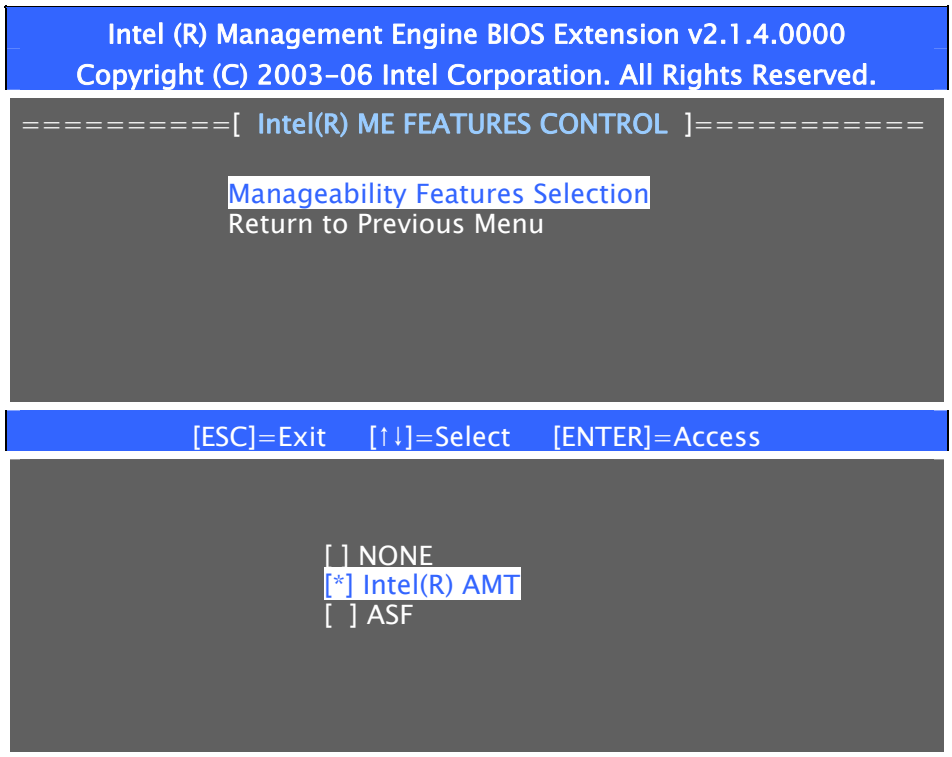
11. Highlight *Intel(R) ME Features Control* and press **[Enter]**.



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

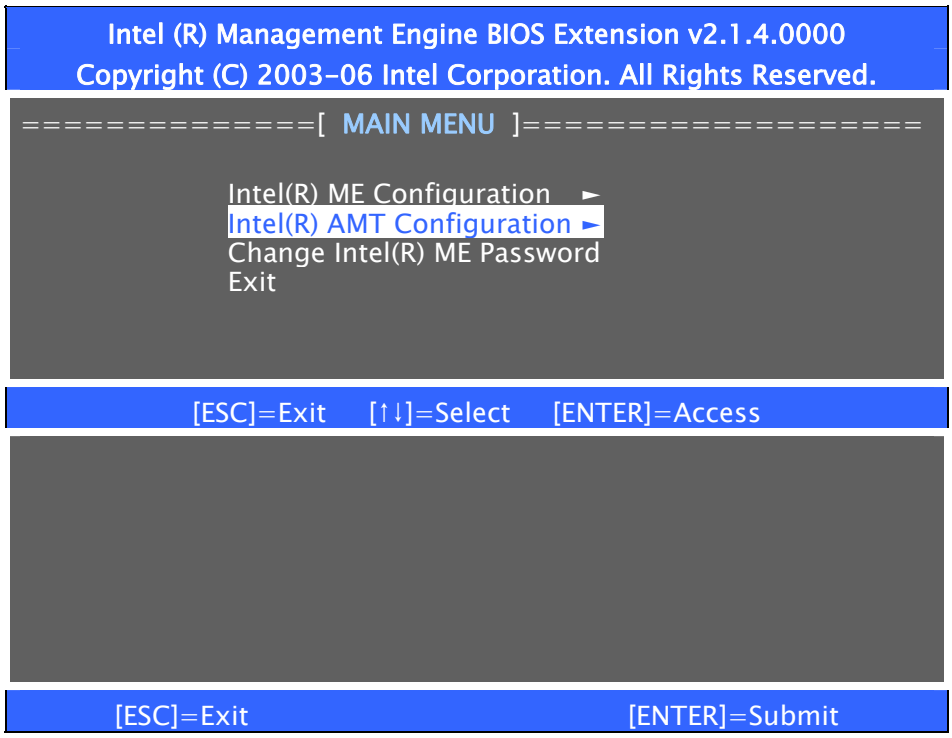


13. Highlight *Intel(R) AMT* and press **[Enter]**.

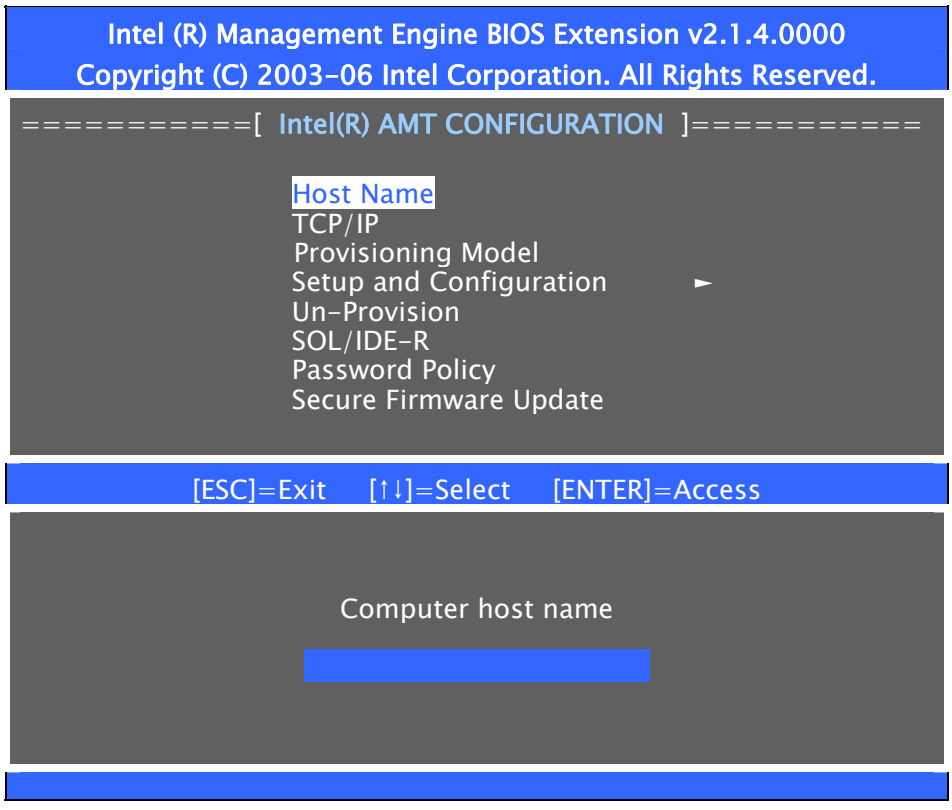


14. Highlight *Return to Previous Menu* and press **[Enter]**.
15. Again, highlight *Return to Previous Menu* and press **[Enter]** to exit the program.
16. Highlight *Exit* and press **[Enter]**, then **[Y]** to confirm exit.
17. Log back into the Intel(R) Management Engine.
    a. As previous, during re-boot watch for the `Press <CTRL-P> to enter Intel(R)ME Setup` message and press **Ctrl-P**.
    b. Enter the password and press **[Enter]**.

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

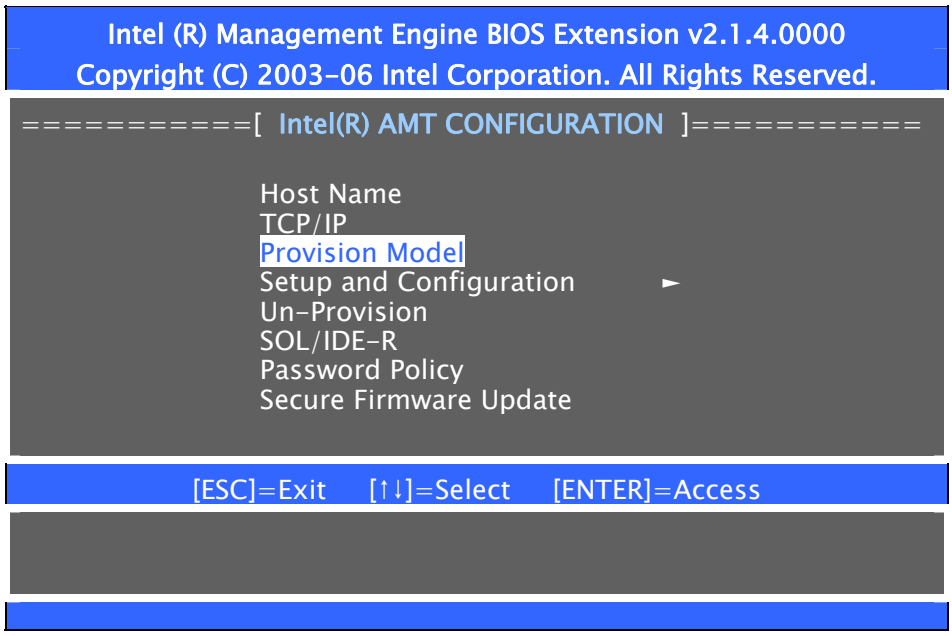


19. Highlight *Host Name* and press **[Enter]**.

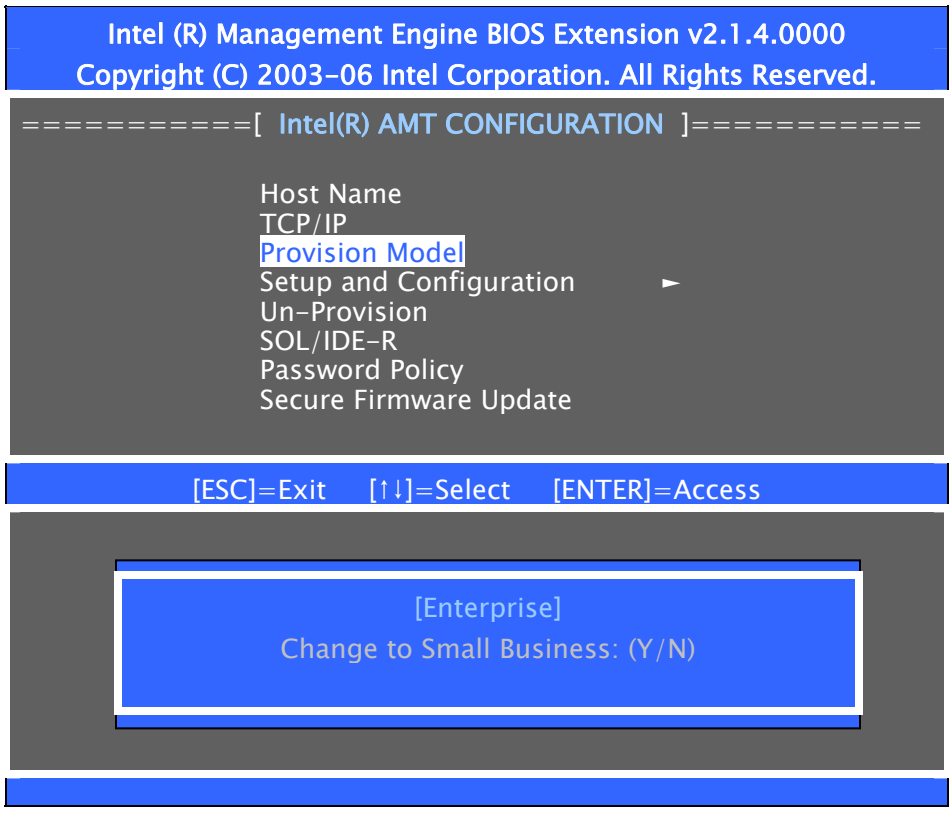


20. Enter a *Host Name* for this terminal (your choice) and press **[Enter]**. **Example:** POS21

21. Verify Provision Model is set to *Small Business*. Highlight *Provision Model* and press **[Enter]**.



22. The pop up message indicates whether your Provision Model is set as *Small Business* or *Enterprise*. Set the mode to **Small Business**, if necessary. If it is set to the default setting (*Enterprise)* you will not have access to the web - based interface.



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

Logging onto the 7403 Terminal Using AMT

After configuring the 7403 you should now be able to log into it from a browser on a remote PC.

1. Determine the target 7403'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.

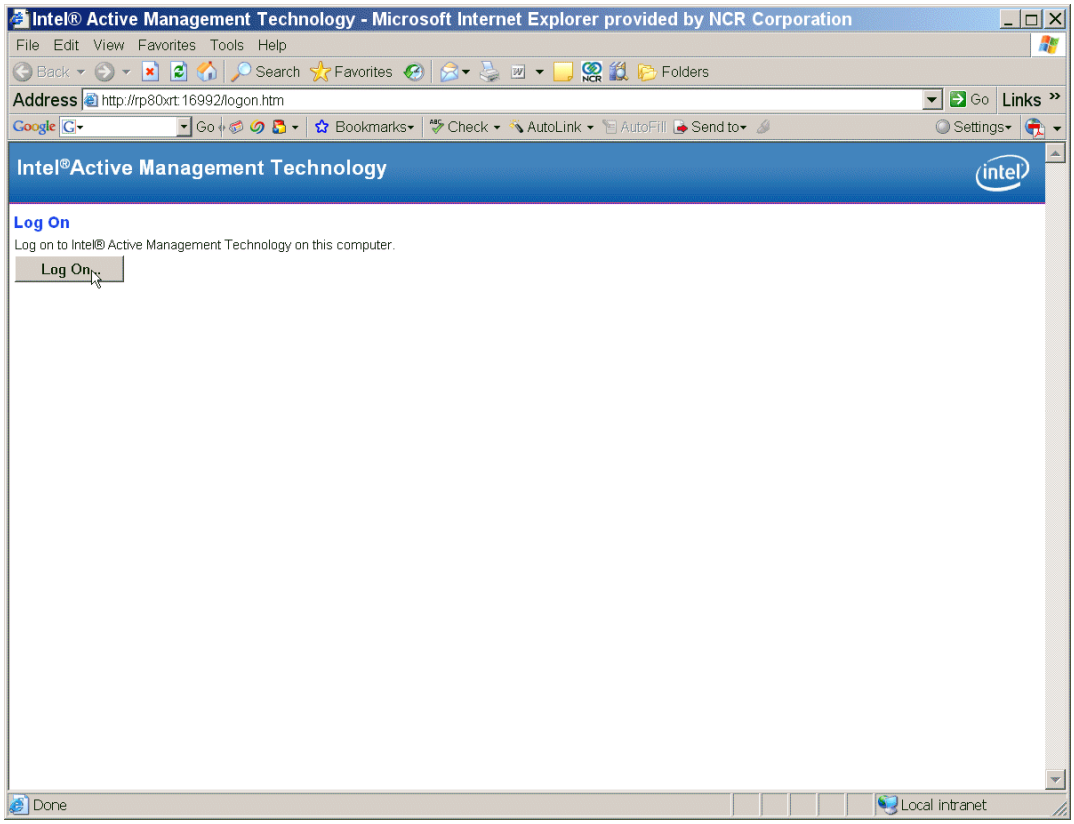
2. Open the browser on the PC.

3. Enter the IP address in the Address line. Include the 16992 port.

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

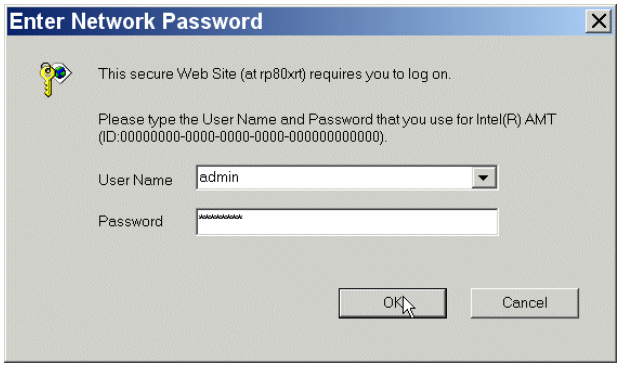
   Note: The 16992 port number is fixed and cannot be changed.

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

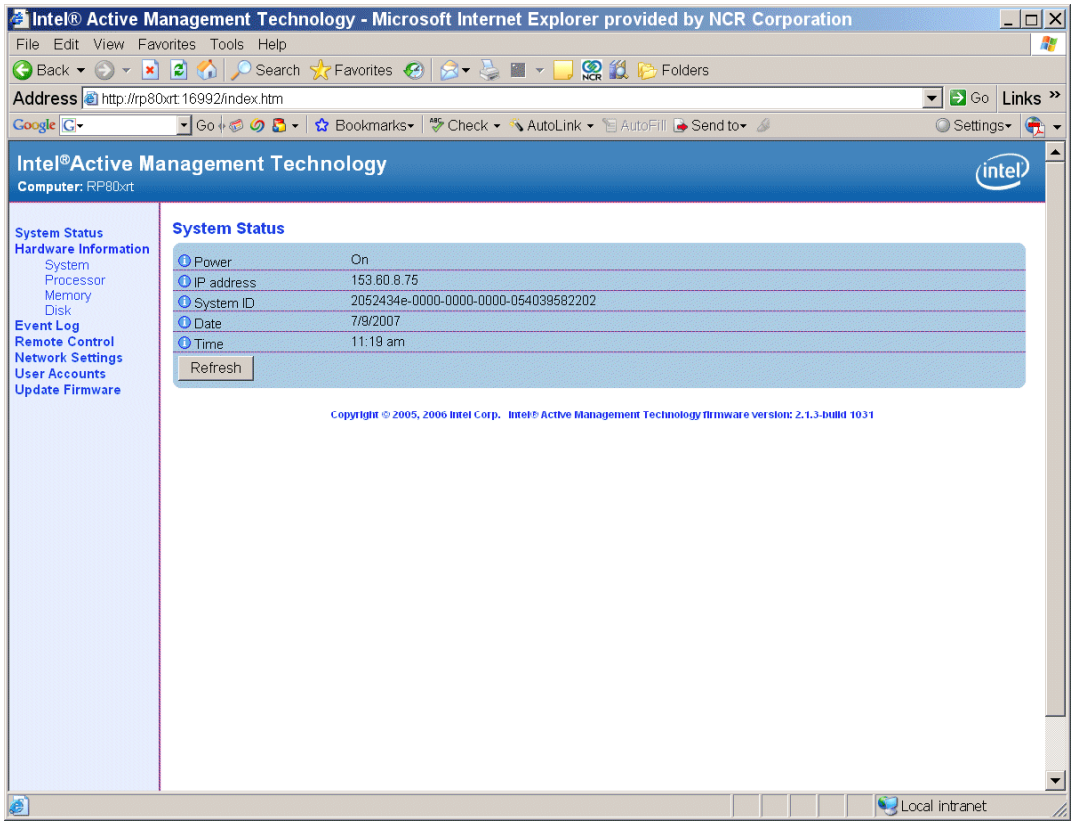


5. Enter the *UserName* and *Password* and then select **OK**.

   UserName: admin
   Password: <your password>



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



Removing the Hard Disks

Caution: If the hard disks are removed both disks must be re-installed in the same slots that they were removed from in order for Intel ME/AMT features to function correctly.

Chapter 6: Installing Optional Remote Peripherals

Introduction

This chapter discusses how to install optional remote peripheral devices.

Cable Routing

Peripheral cables connect to the I/O Panel behind the Base Front Cover or to the Backplane Board. See the *Connecting the External Cables* section in the *Installing the Terminal* chapter for instructions how to access the connectors and how to route the cables.

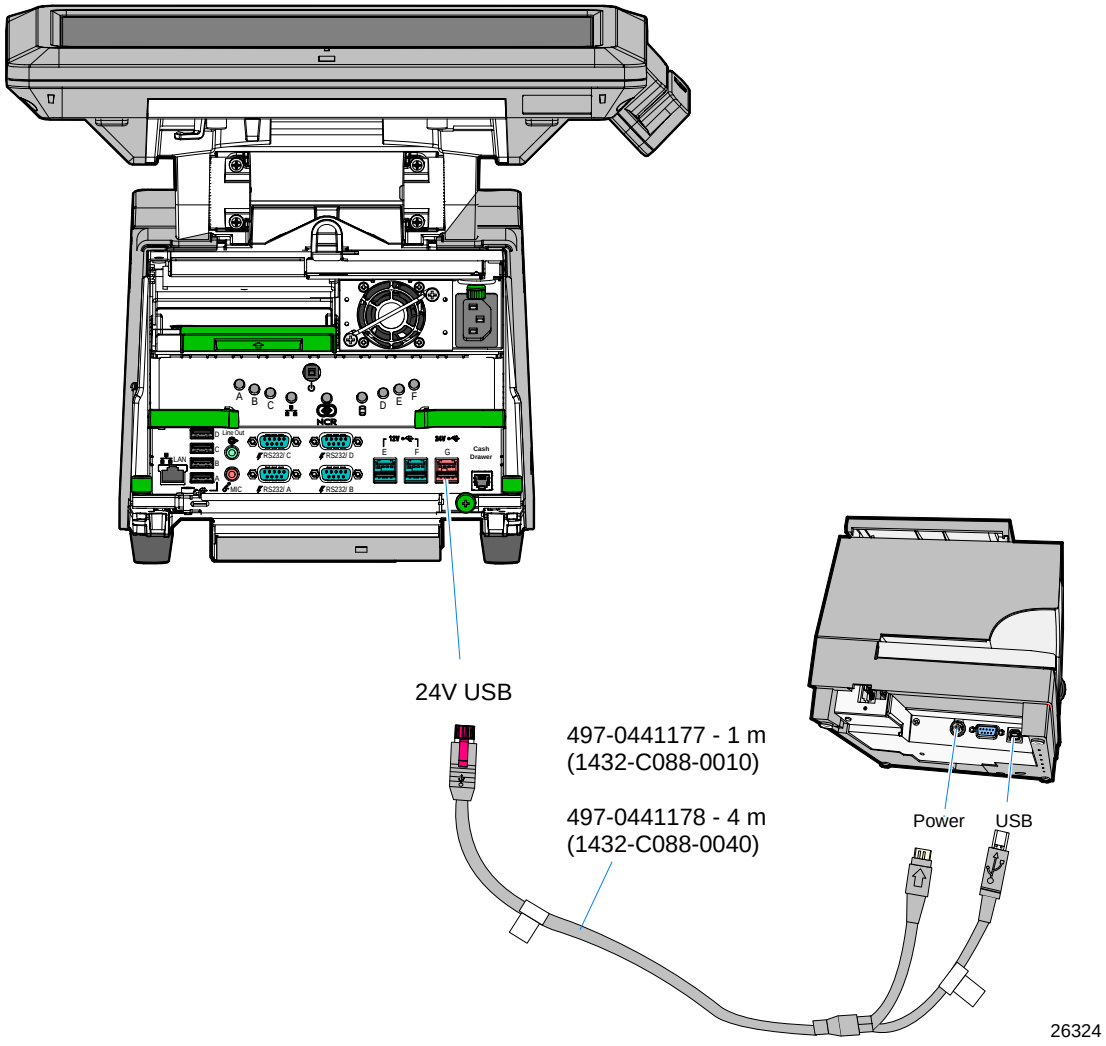
Installing a Transaction Printer

Note: This section discusses how to connect a remote printer. The printers can also be integrated with the 7403 terminal using the Integration Trays. See the *GMS Integration Tray* (7403-K300) or *Hospitality Integration Tray* (7403-K301) Kit Installations for more information.

The printers can connect through a USB connector or an RS-232 connector. It receives power through a Powered USB power cable.

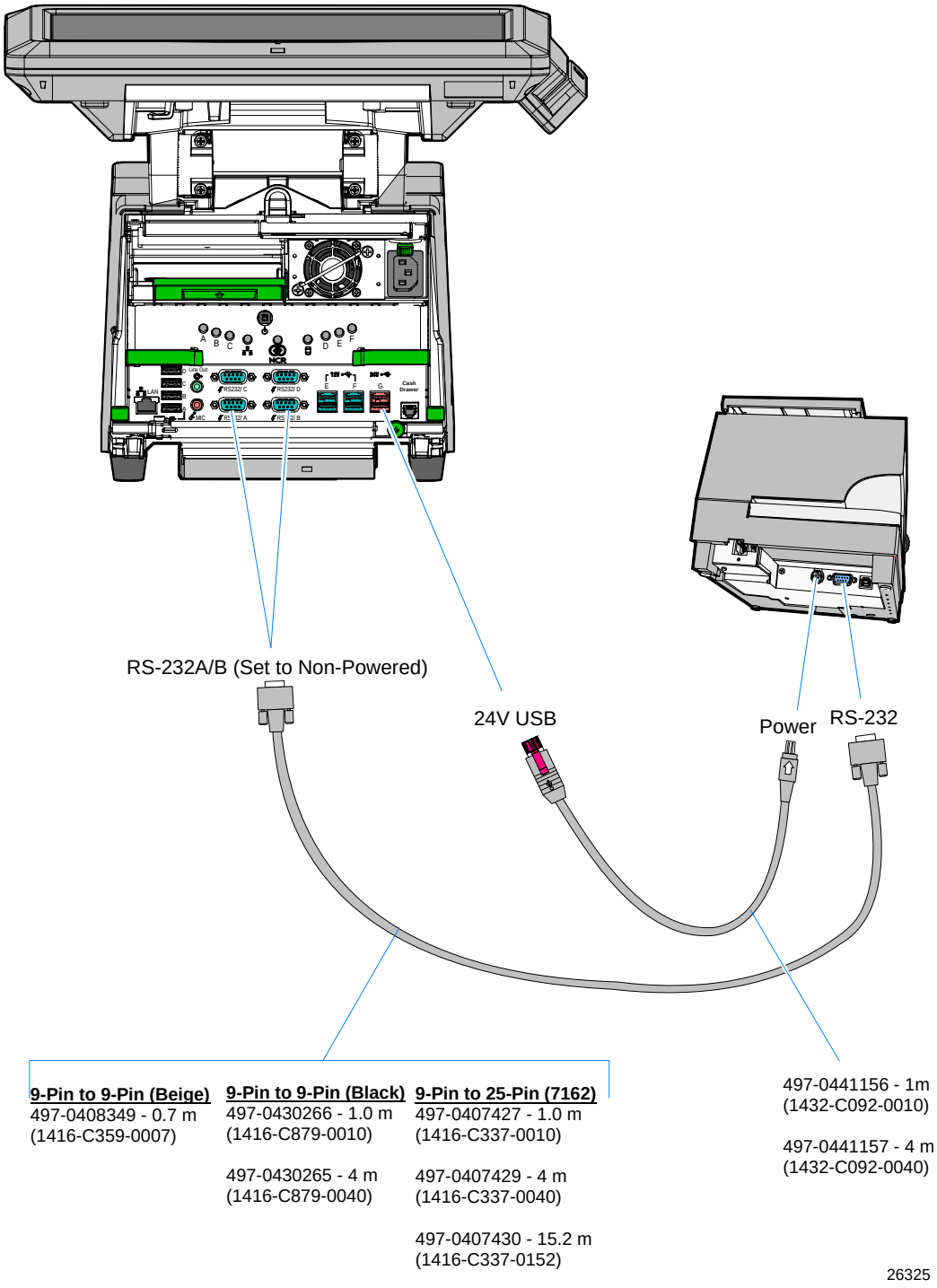
USB Installation

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



RS-232 Installation w/Power from Powered USB

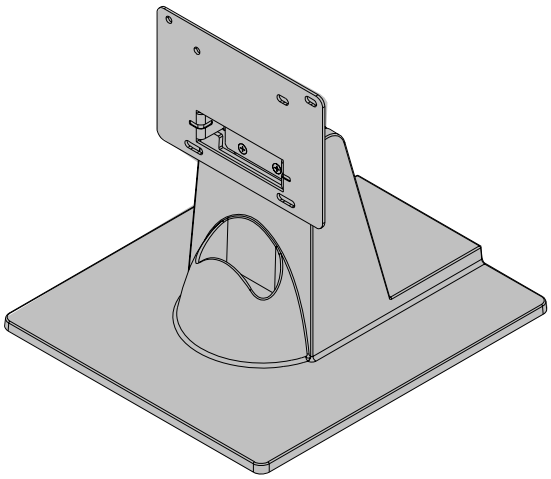
1. Connect the RS-232 Printer Interface Cable to the *RS-232 Connector* on the printer and to an *RS-232 Connector* on the terminal.
2. Connect the Printer Power Cable to the *Power Connector* on the printer and to the *24 V Powered USB Connector* on the terminal.



Installing a Remote Customer Display

The Standard Remote Mount (5964-K031) is used to mount the following NCR displays.

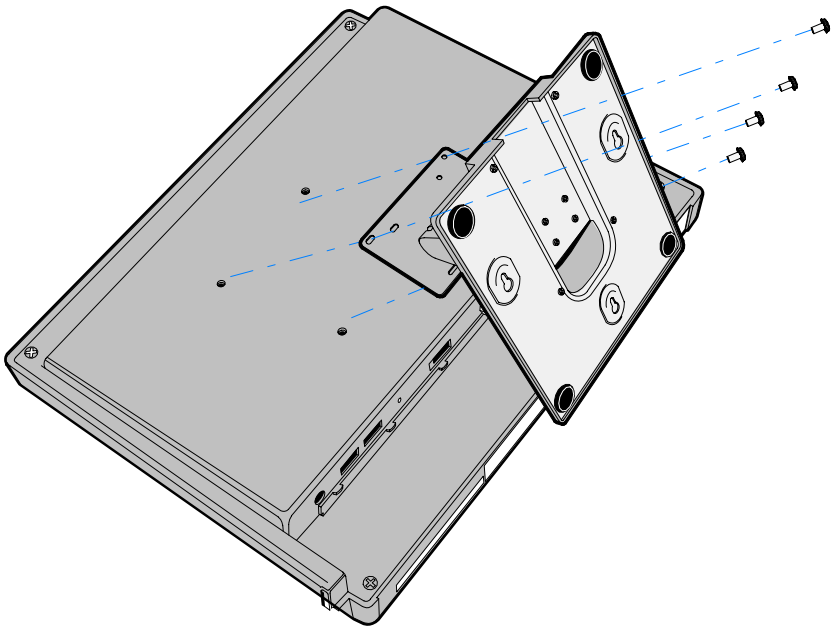
- NCR 5964 15-Inch Touch Monitor
- NCR 5942 12.1-Inch Monitor
- NCR 5942 15-Inch Monitor
- NCR 5965 15-Inch Touch Monitor



21151b

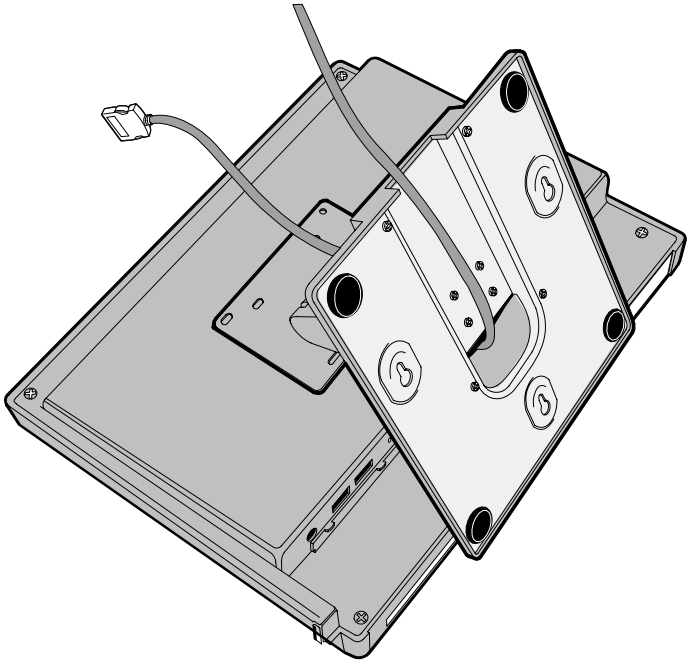
The displays are installed on the mount in a similar fashion. Only the 5964 is shown. See the following sections for cable connections to the host terminal.

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



26473

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

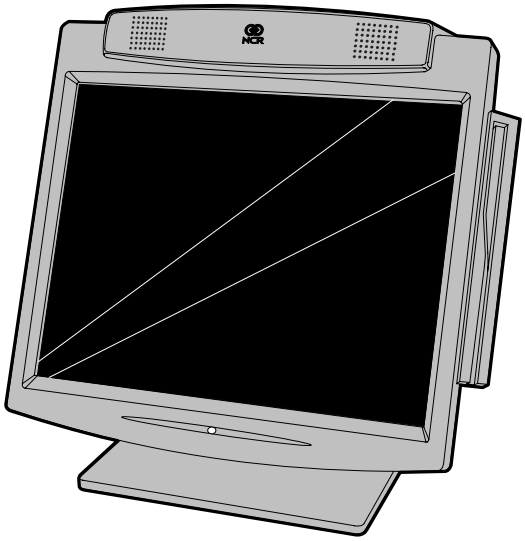


26474

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

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



21496

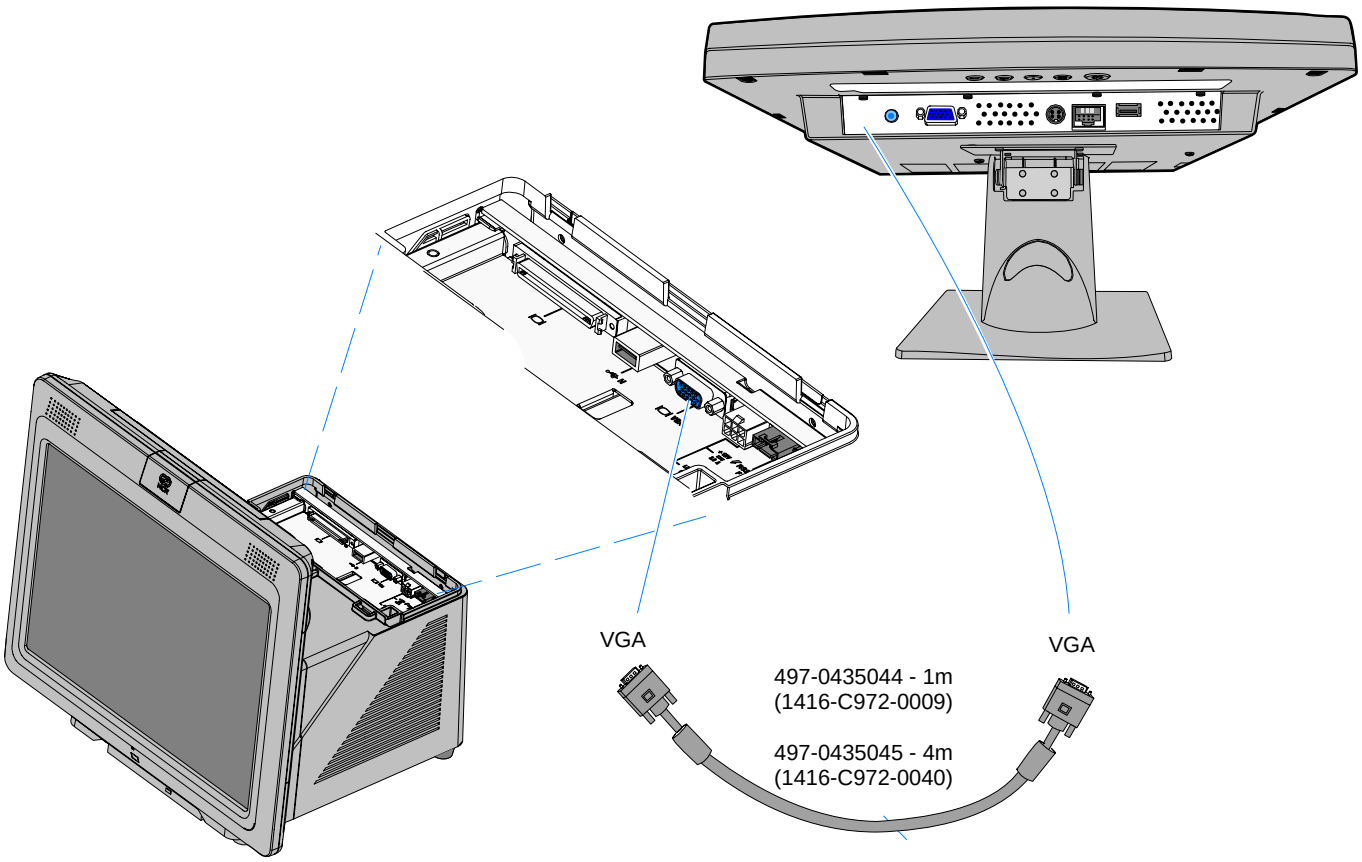
Note: A PC keyboard is required to configure a 5964 15-Inch Touch LCD.

The following illustrations show the cable connections for the 5964 LCD and the 7403 terminal. There are two cables required.

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

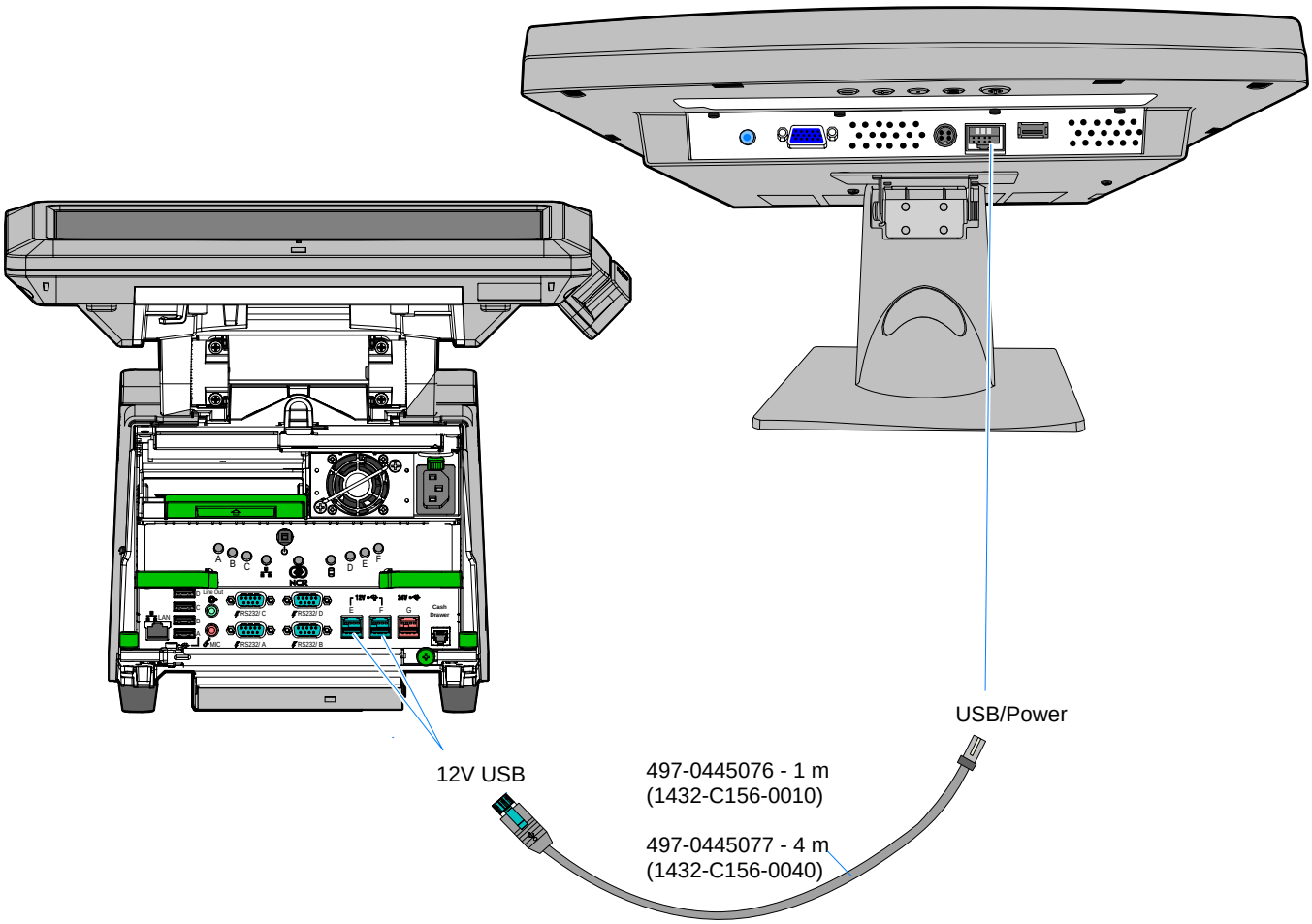
VGA Connections

Connect the LCD Cable to the *VGA* connectors on both the 5964 LCD and 7403 terminal.



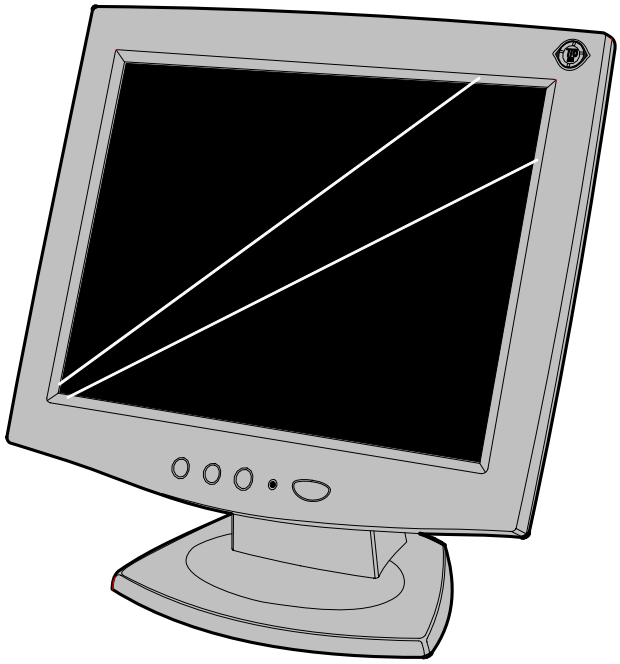
Powered USB Cable Connections

Connect the Powered USB Cable to the 5964 Touch LCD and to one of the *12V Powered USB* connectors on the 7403 terminal.



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

NCR 5942 12.1-Inch LCD Monitor Cable Connections



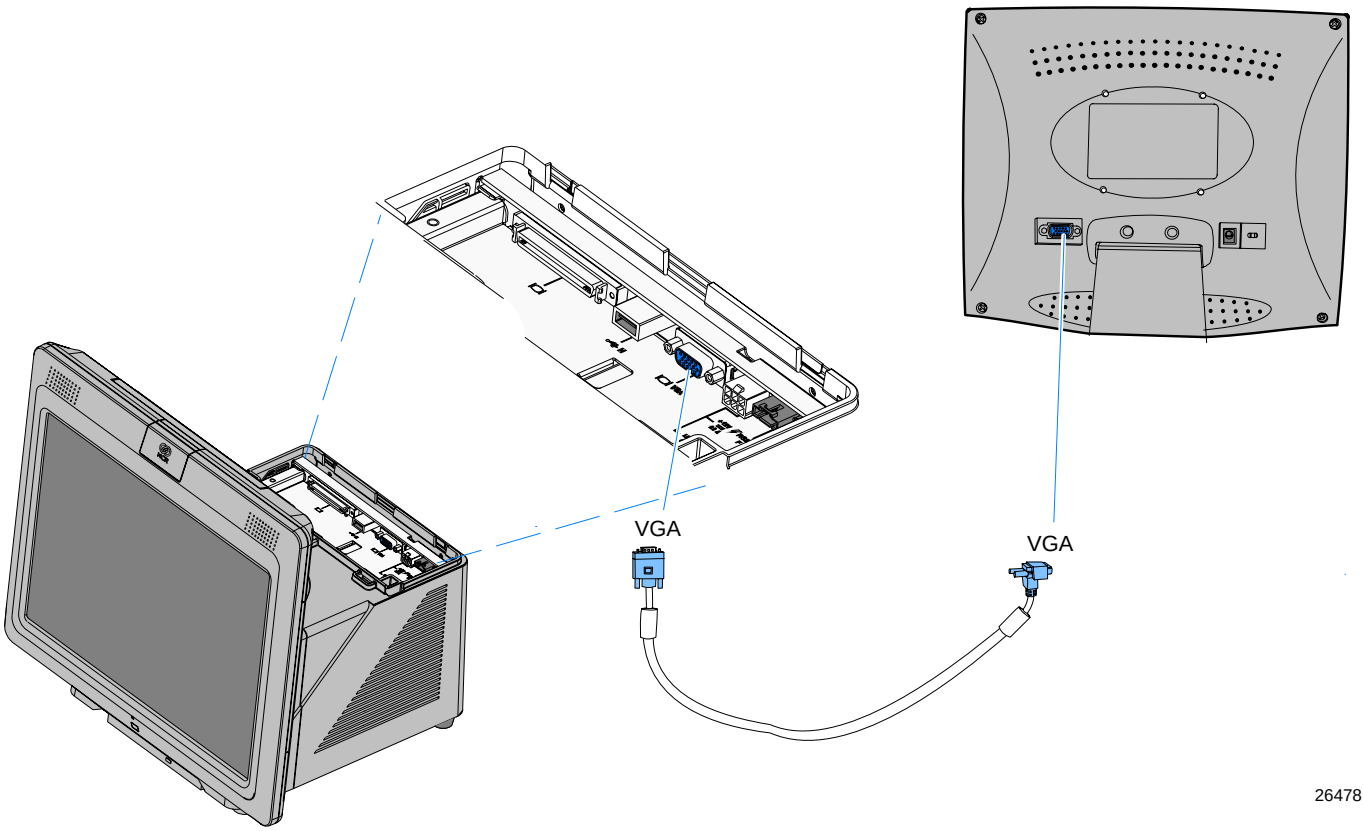
19809

The following illustrations show the cable connections for the 5942 12.1” LCD and the 7403 terminal. There are two cables required.

- VGA cable for video (supplied with LCD)
- Powered Universal Serial Bus (USB) for power (or optional power brick)

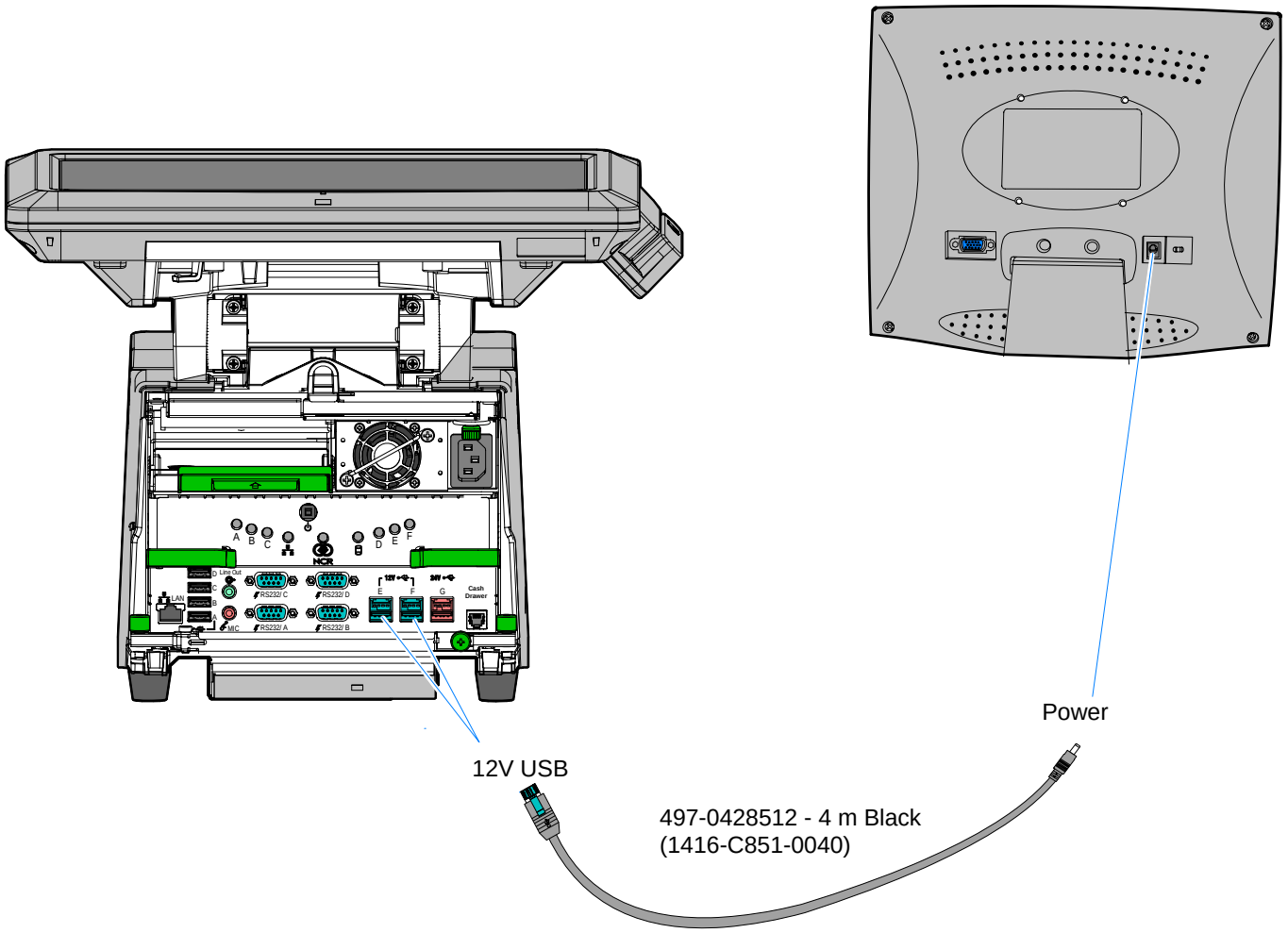
VGA Connections

Connect the LCD Cable to the *VGA* connectors on both the 5942 12.1” LCD and 7403 terminal.



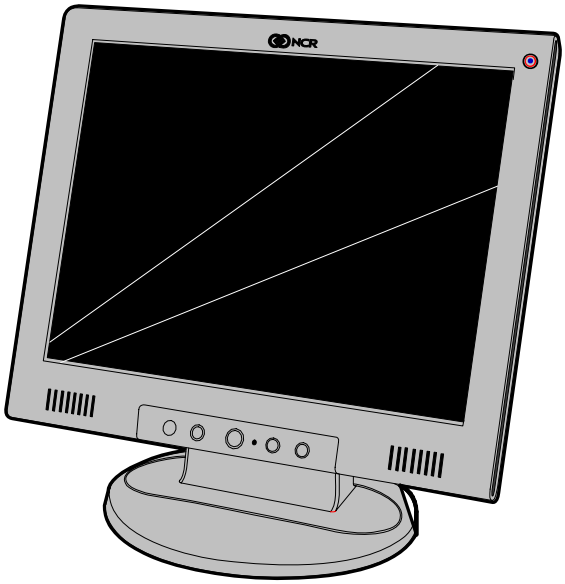
Powered USB Cable Connections

Connect the Powered USB Cable to the 5942 12.1” LCD and to one of the *12V Powered USB* connectors on the 7403 terminal.



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



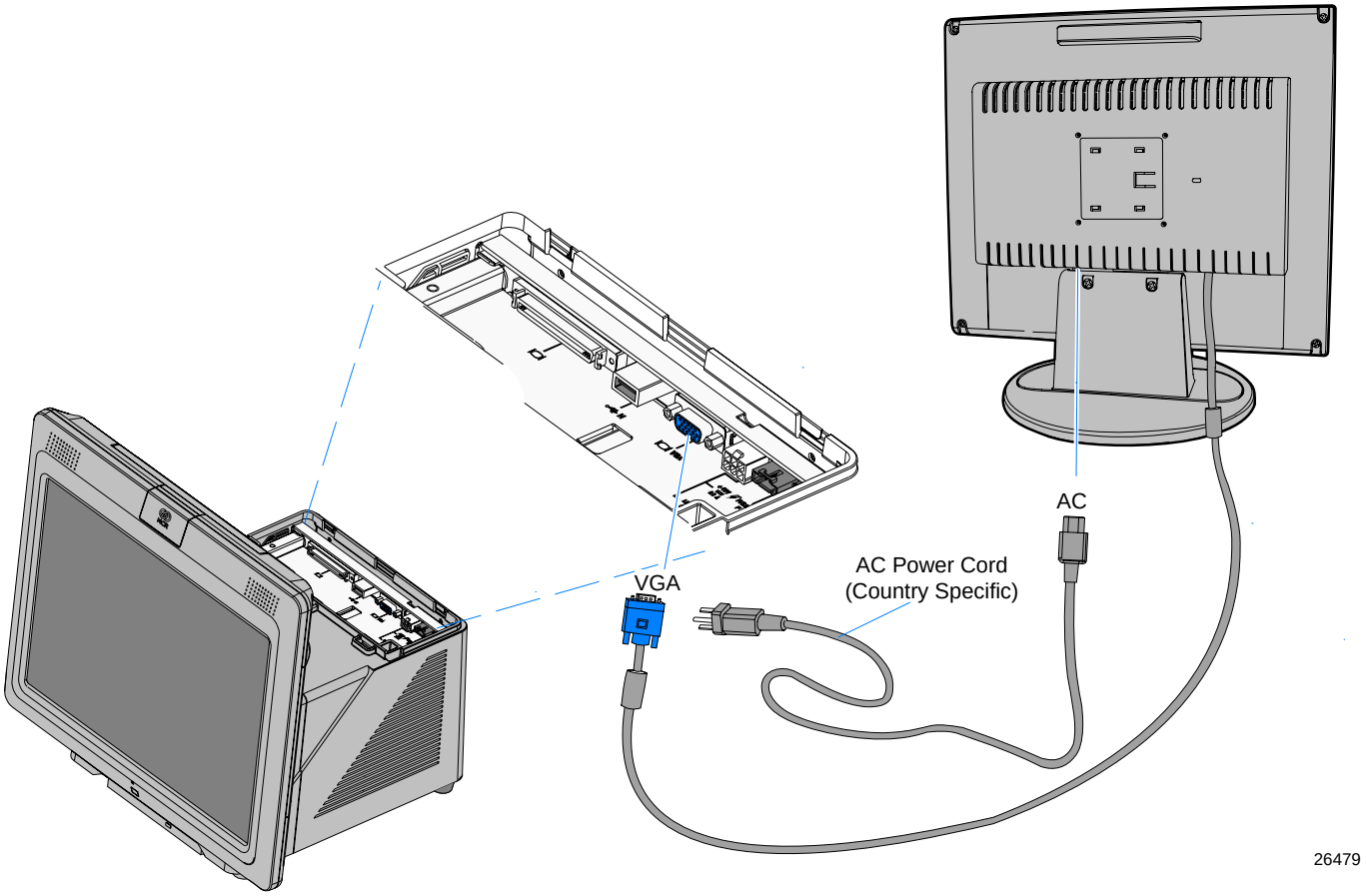
21492

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

- VGA cable for video (supplied with LCD)
- AC Power Cord (country specific)

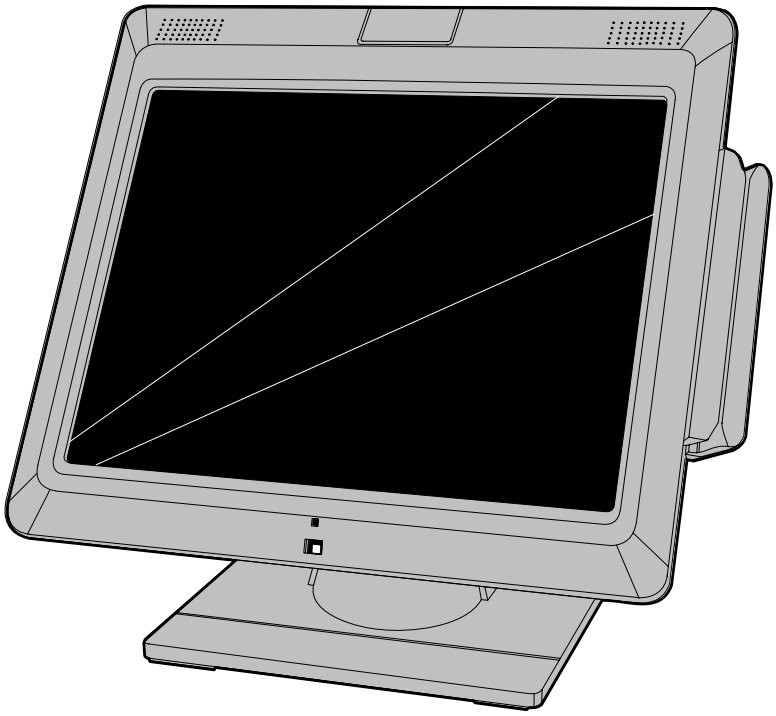
VGA Connections

The VGA cable is permanently connected to the 5942 15” LCD. Connect this cable to the *VGA* connector on the 7403 terminal.



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

NCR 5965 15-Inch Touch LCD Cable Connections



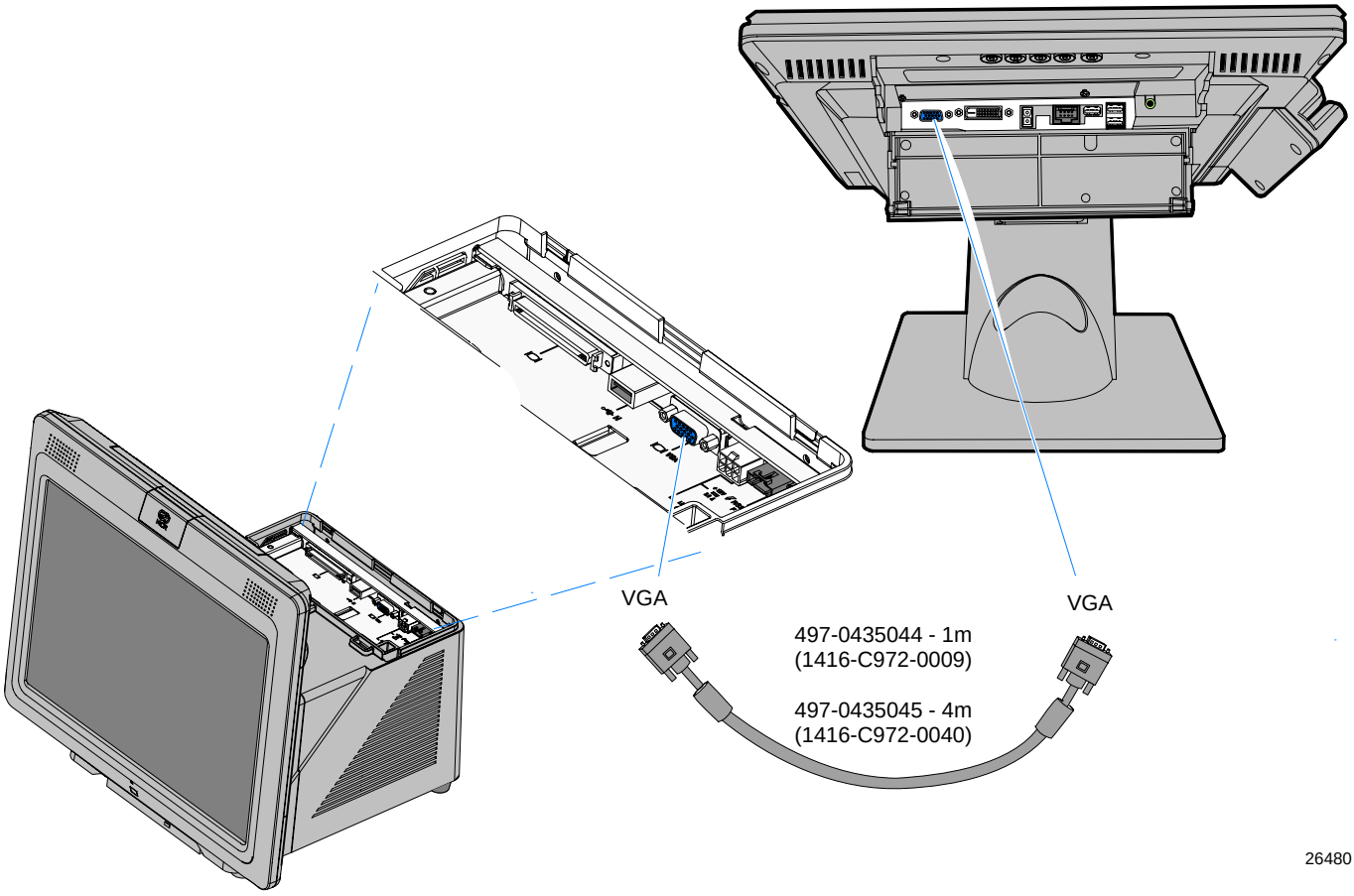
25819

The following illustrations show the cable connections for the 5965 15” Touch LCD and the 7403 terminal. There are two cables required.

- VGA cable for video
- Powered Universal Serial Bus (USB) for power (or optional power brick)
- USB Cable (if using a power brick)
- Audio Cable (optional)

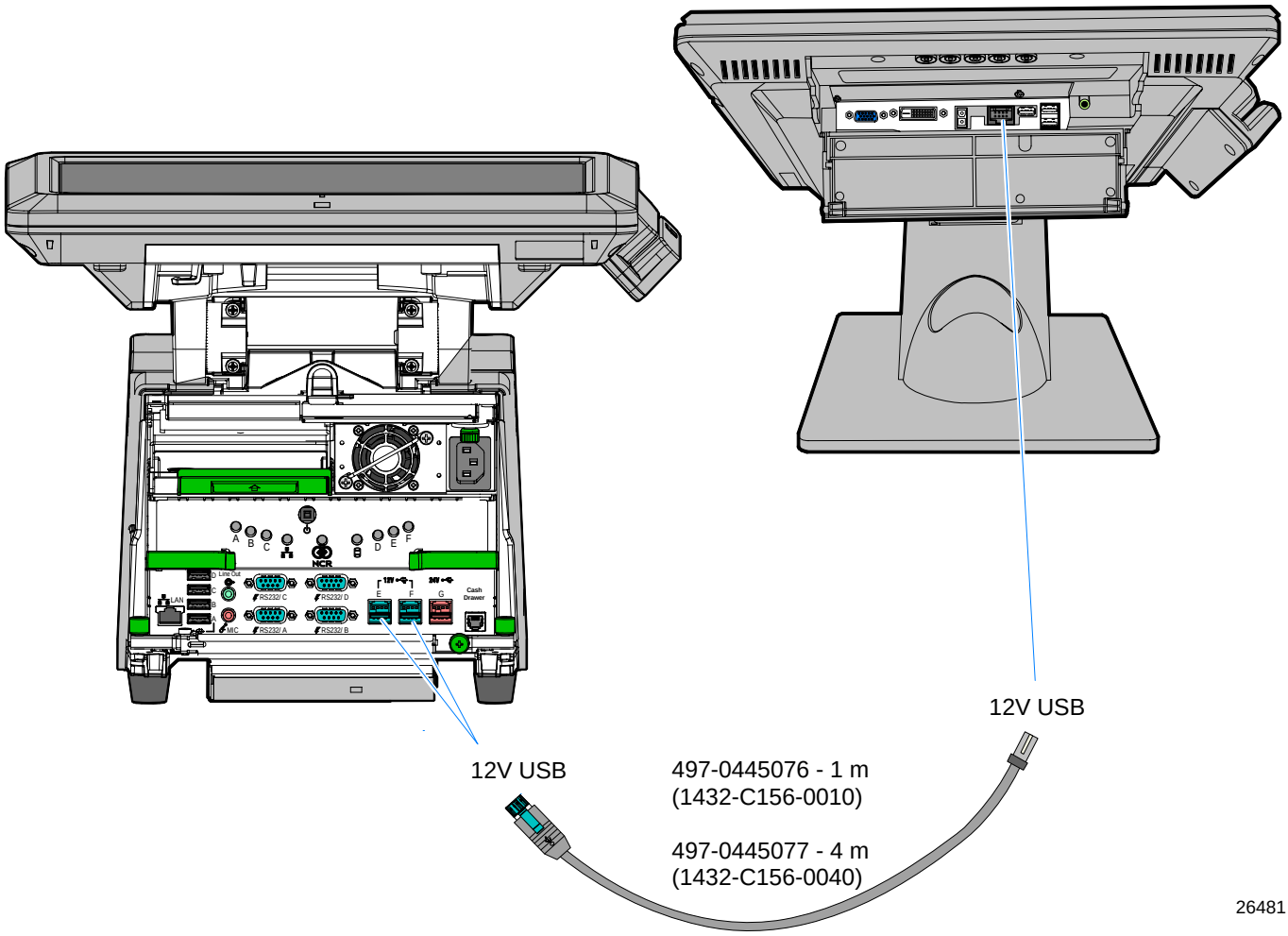
VGA Connections

Connect the LCD Cable to the *VGA* connectors on both the 5965 LCD and 7403 terminal.



Powered USB Cable Connections

Connect the Powered USB Cable to the 5965 LCD and to one of the *12V Powered USB* connectors on the 7403 terminal.

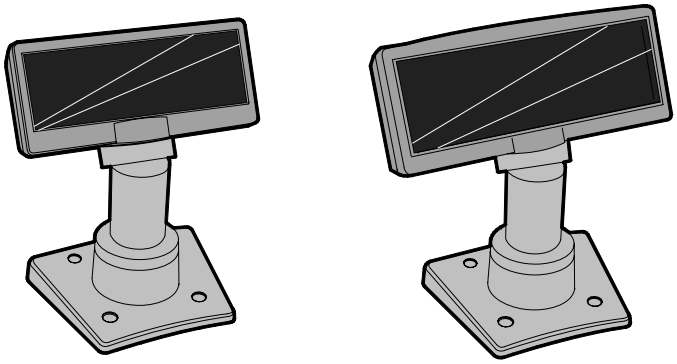


For more information refer to the *NCR 5965 15-Inch Touch LCD Monitor User's Guide* (B005-0000-1865).

Installing an NCR 5975 Remote Customer Display

There are two models of the NCR 5975 Remote Customer Display:

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

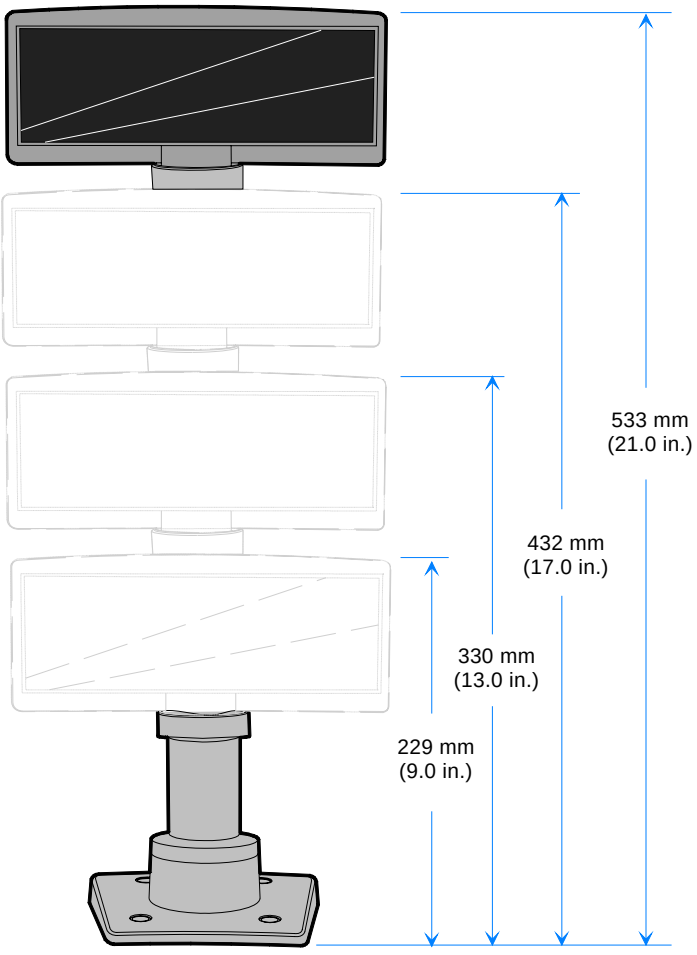


5975-1xxx 2x20 VFD

5975-1xxx Graphical Display

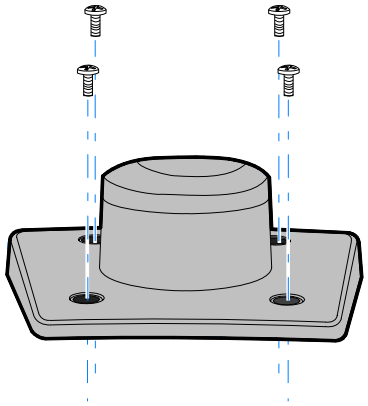
22926

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



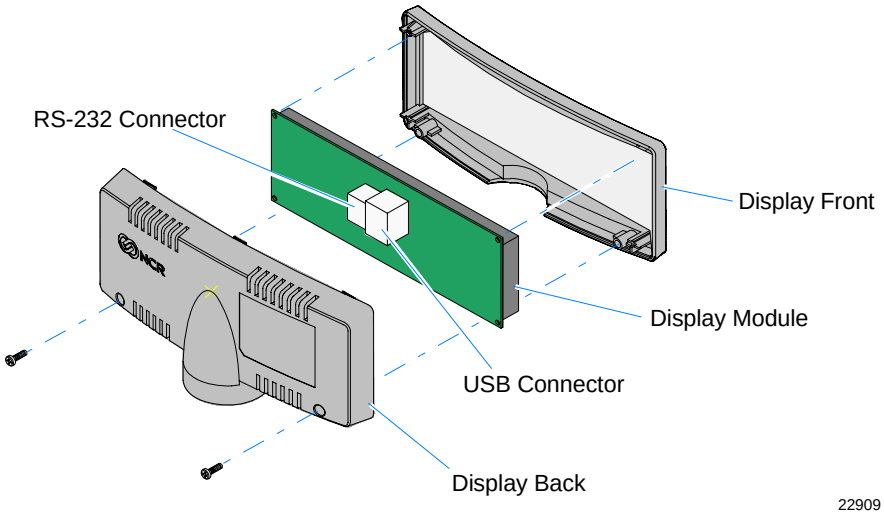
22918

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

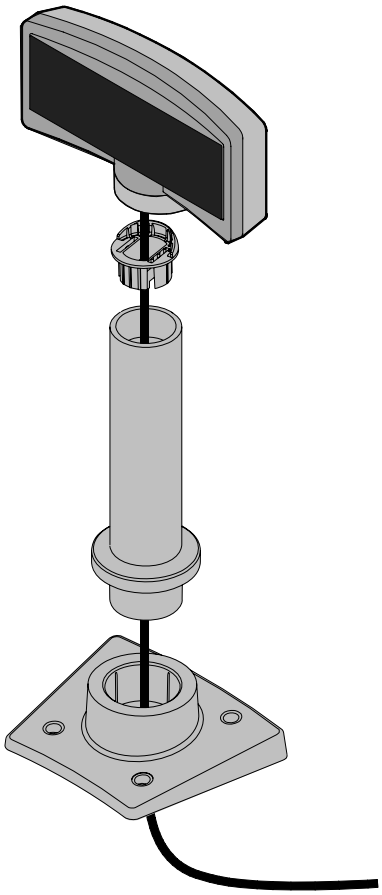
4. Connect the Interface Cable to the Display Module.
   a. Remove the screws (2) from the Display Back.
   b. Remove the Display Back.
   c. Route the Interface Cable though the opening in the Display Back.
   d. Connect the cable to the proper connector on the Display Module.



22909

   e. Reassemble the Display Assembly.

5. Route the Interface Cable through the Post and assemble the Post components.

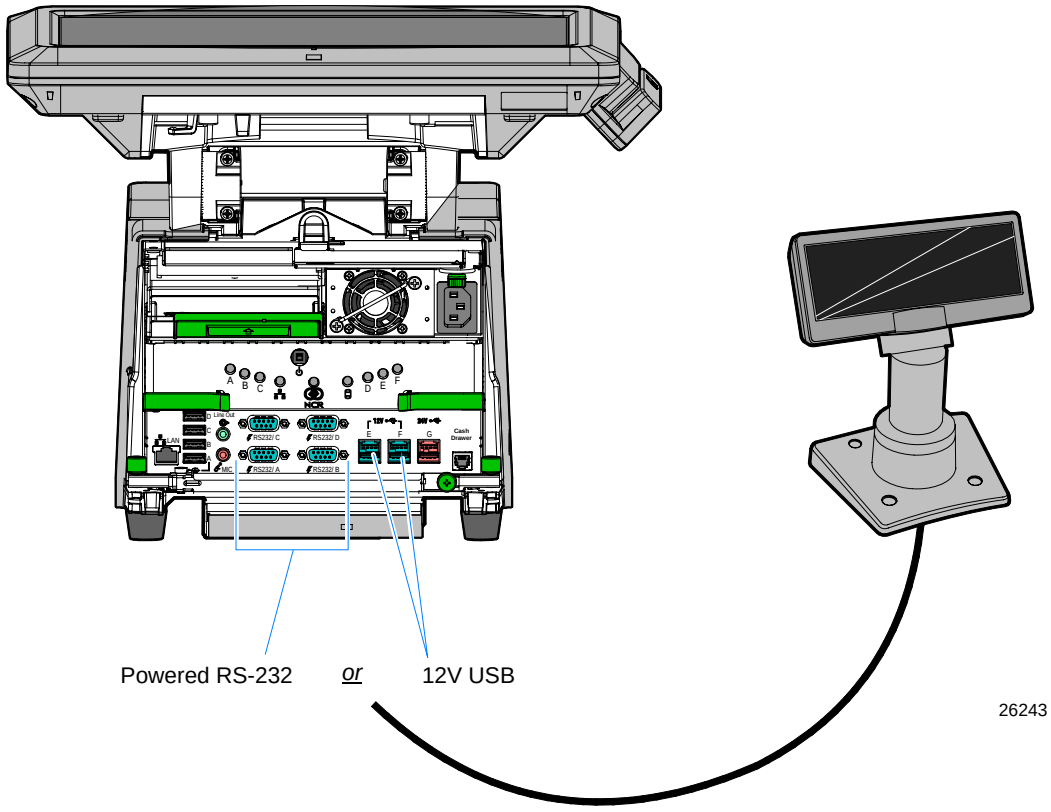


22910

6. Connect the Display Cable to the terminal, based on the type of interface you are using.

USB Interface (Powered)

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



RS-232 Interface (Powered)

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

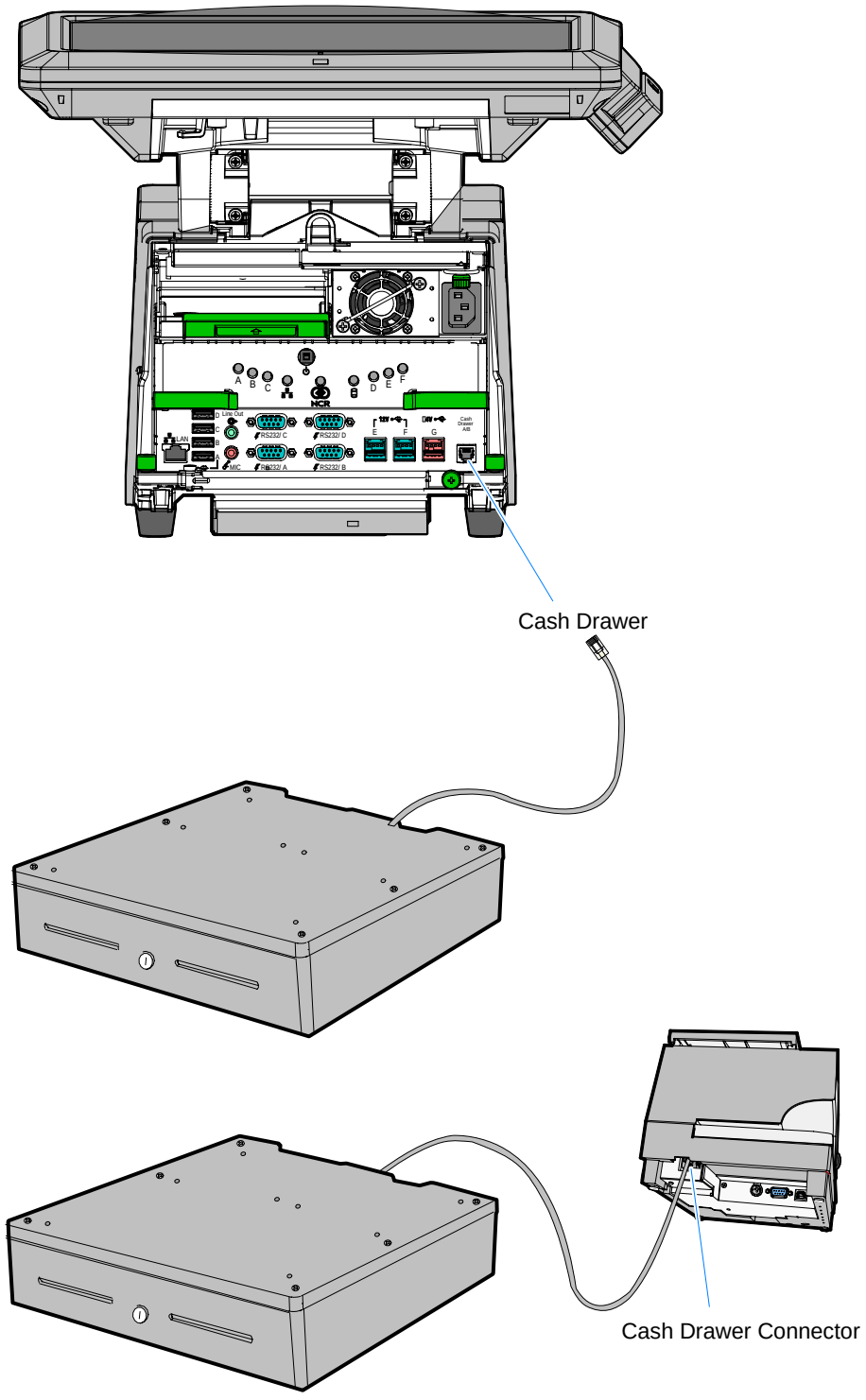
Note: The factory settings for the COM ports are *non-powered* by default. To change a port to powered see the *Circuit Boards* chapter in the *NCR RealPOS 70XRT Service Guide*, B005-0000-1874.

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

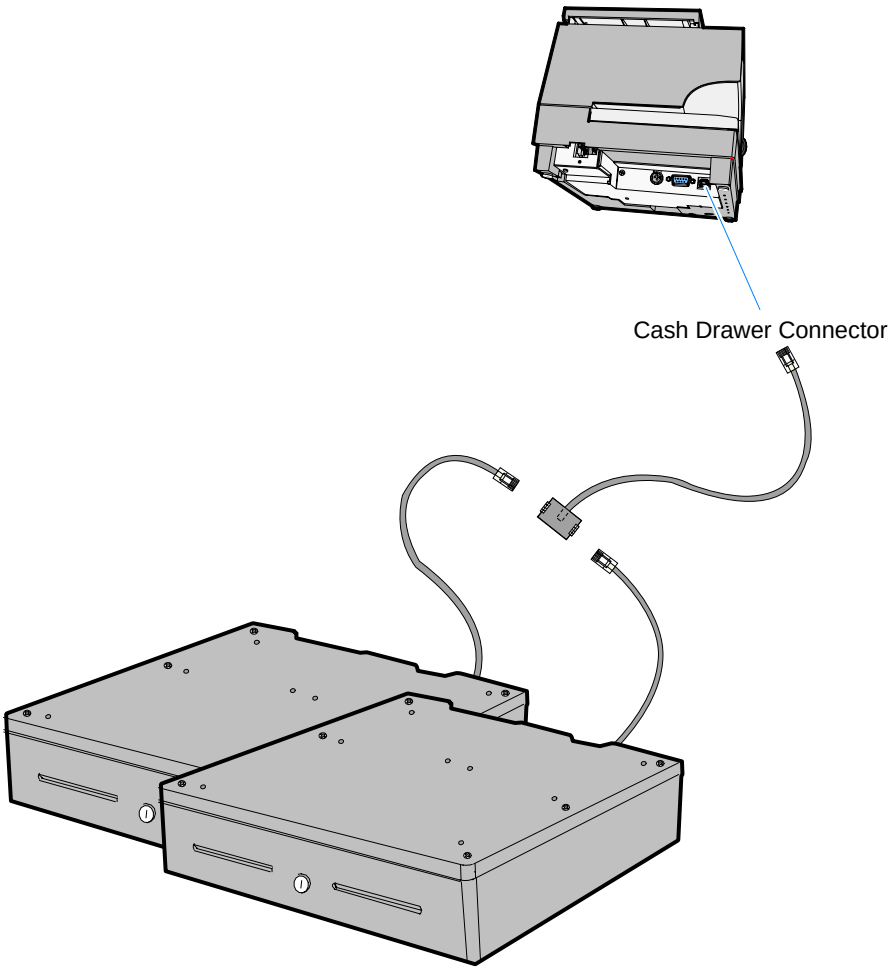
The Cash Drawer can be connected to the Cash Drawer connector or to the transaction printer.



Installing a Second Cash Drawer

The terminal also supports a 2-drawer configuration using a Y-cable (1416-C372-0006) connected to the printer.

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



Chapter 7: Installing a RAID System

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 multiple hard drives, you can take advantage of enhanced performance and lower power consumption. When using more than one drive 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 any one of three fault-tolerant RAID levels: RAID 1, 5 or 10. 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.

Matrix RAID

For those users who wish to combine the benefits of two RAID levels, Matrix RAID is the solution. When using two hard drives, Matrix RAID permits RAID 0 and RAID 1 functions to be combined, where critical files can be stored on RAID 1, and RAID 0 can be used for non-critical items such as software.

The RAID circuitry is located on the Motherboard. The necessary drivers are included in the NCR Gold Images. You can configure either a RAID Mirrored or RAID Striping Volume.

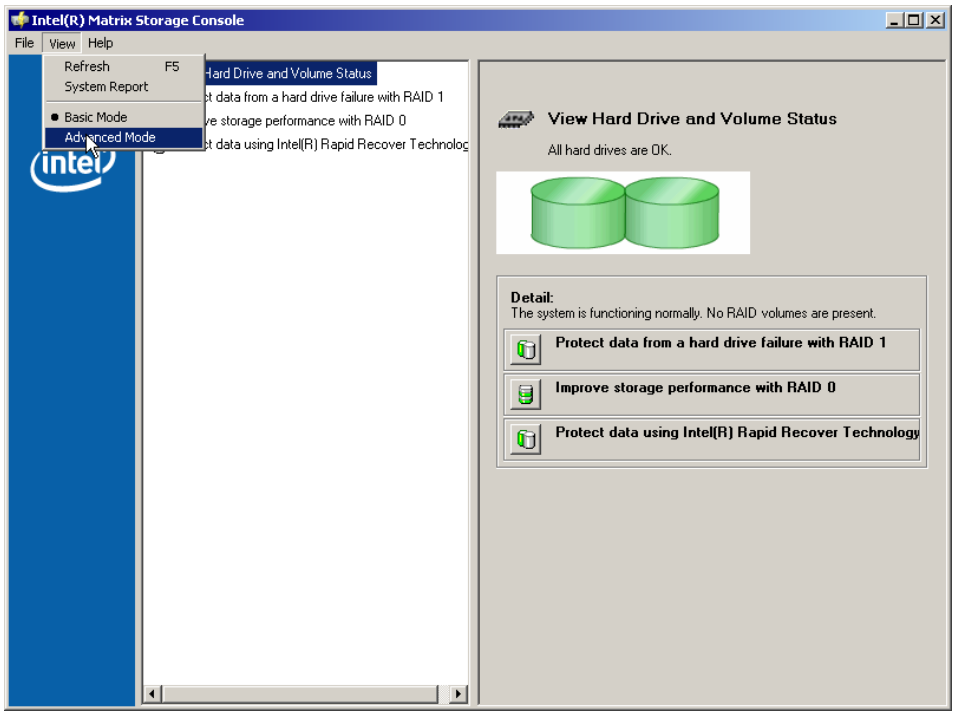
For more information about The Intel Matrix Storage Manager see the Intel® web site.

Installing a RAID System

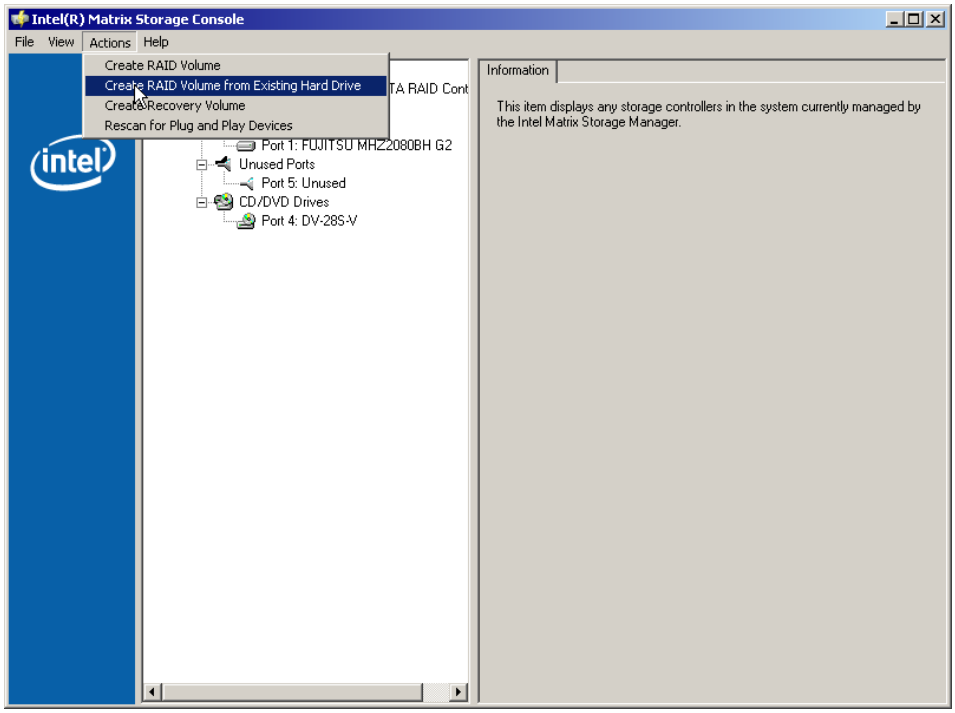
RAID systems for the RealPOS 70*XRT* are installed using the *Dual 2.5" Hard Disk Drives Kit* (7403-K262). This kit contains two 80GB SATA hard disk drive and HDD brackets.

1. Install the primary HDD in the 7403.
2. Load the NCR Gold Drive.
3. Install the second hard disk drive in the terminal (hot plug).
4. Run the Matrix Storage Manager.
   Start → All Programs → Intel(R) Matrix Storage Manager

5. From the *View* menu select **Advanced Mode**.

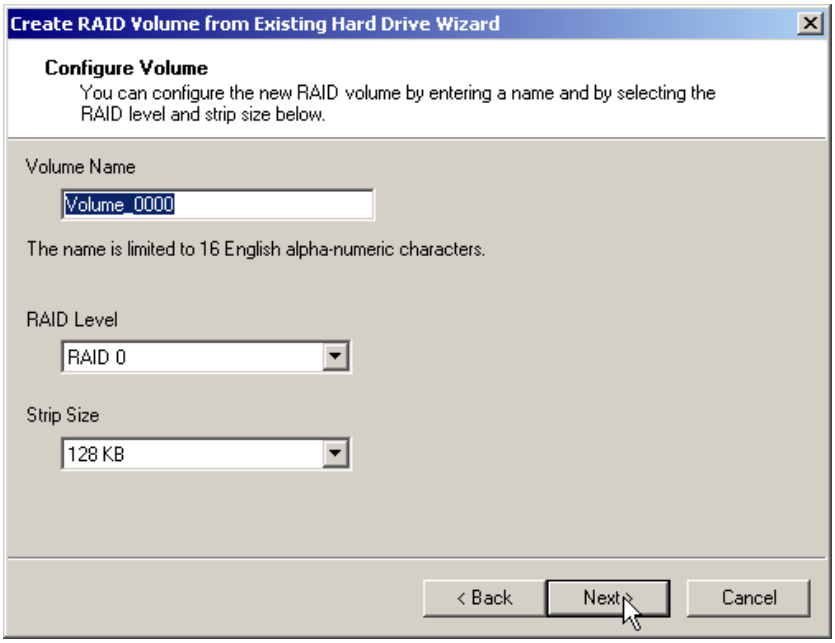


6. From the *Actions* menu select **Create RAID volume from Existing Hard drive**.

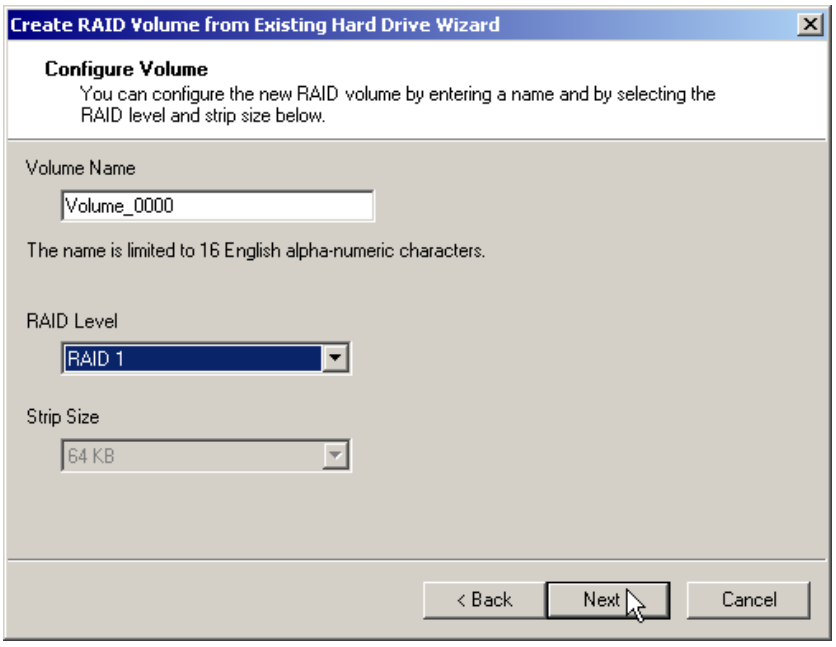


7. Select **Next** at the Welcome screen.

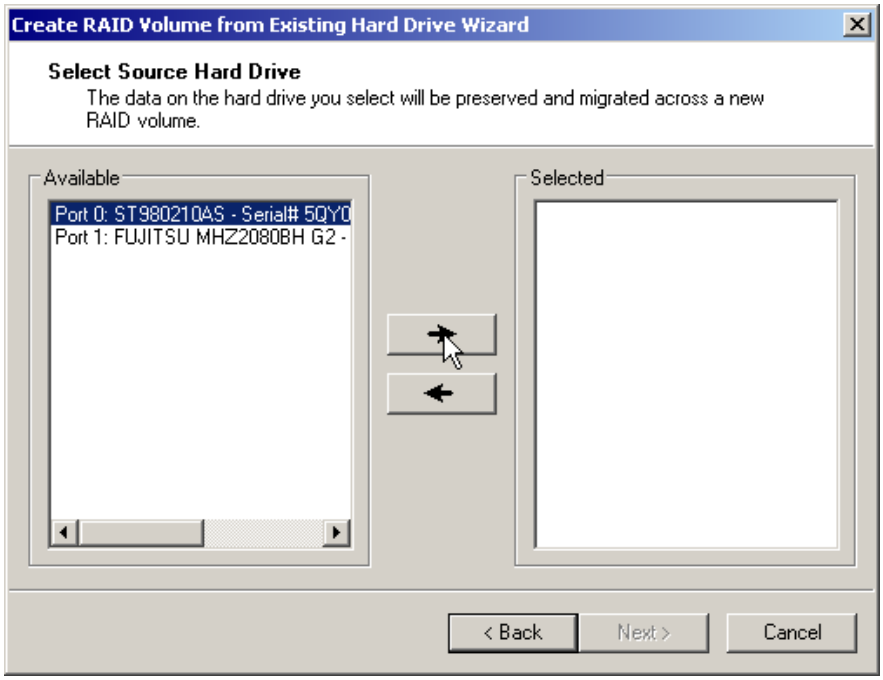
8. Enter a Volume Name (user preference).
9. Select the type of RAID volume you want to install. NCR supports RAID 0 and RAID 1 volume types.
   - RAID 0: Striped Set without parity: provides improved performance and additional storage but no fault tolerance from disk errors or disk failure. Any disk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



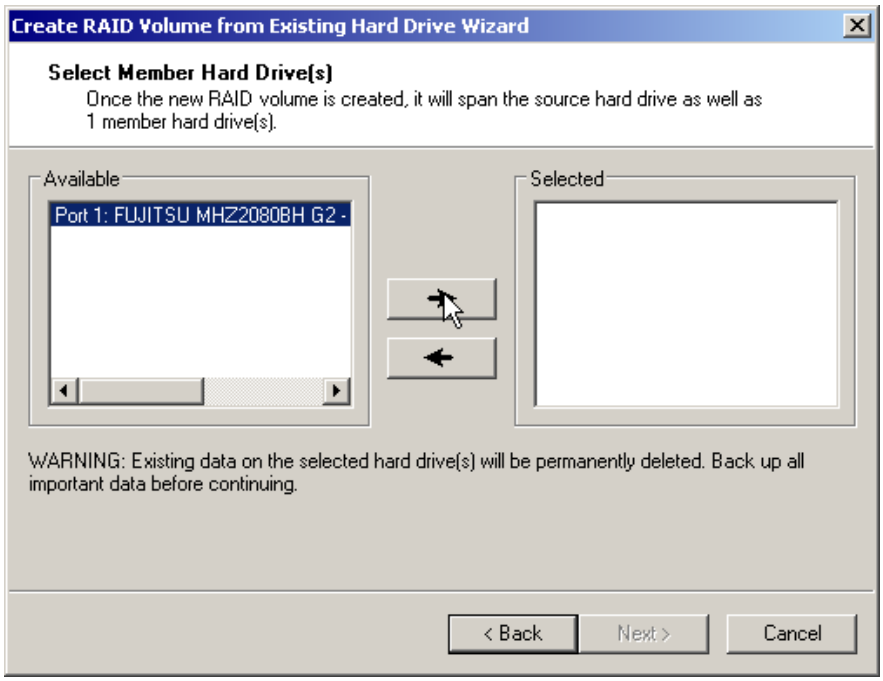
- RAID 1: Mirrored Set without parity: provides fault tolerance from disk errors and single disk failure. Increased read performance occurs when using a multi-threaded operating system that supports split seeks, very small performance reduction when writing. Array continues to operate with one failed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



10. 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**.

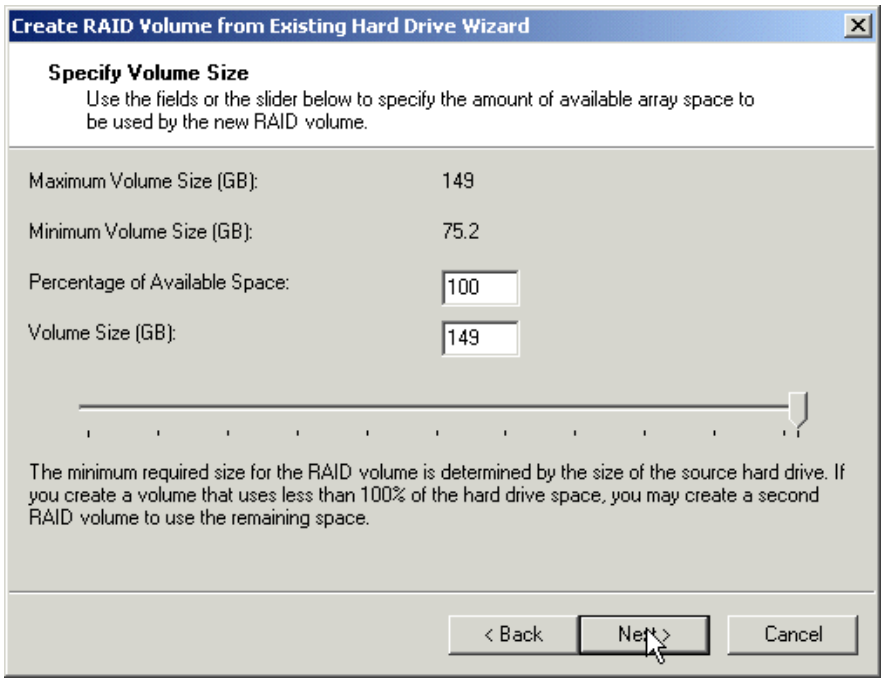


11. Select the correct *Member* drive from the list of available drives and move it to the right side window using the arrow button. Select **Next**.

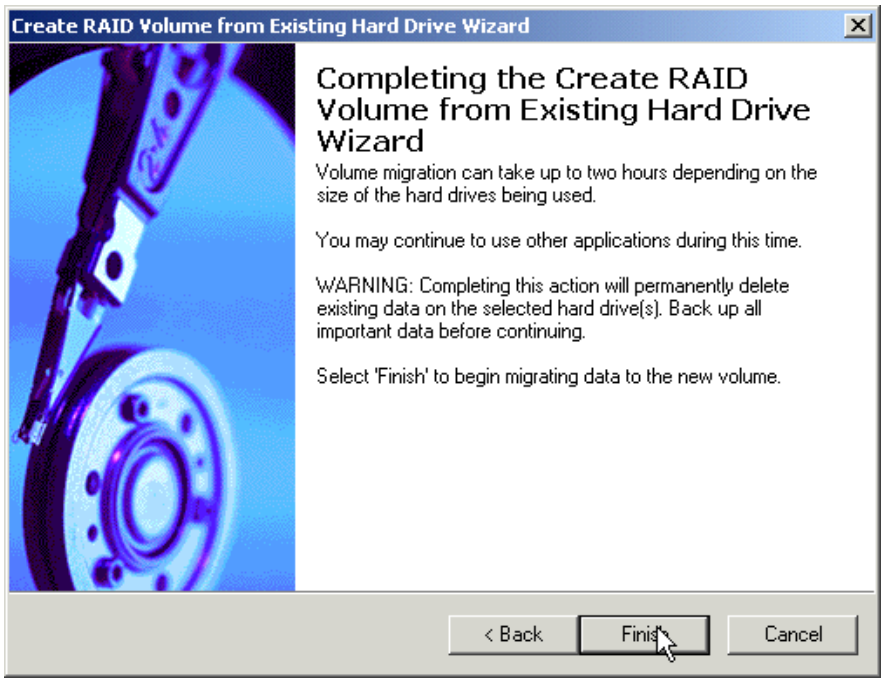


12. **RAID 0 Only:** Specify the amount of available space to be used by the new RAID volume. You can use the slider to do this, or you enter a percentage of disk space or the size in GB in the fields.

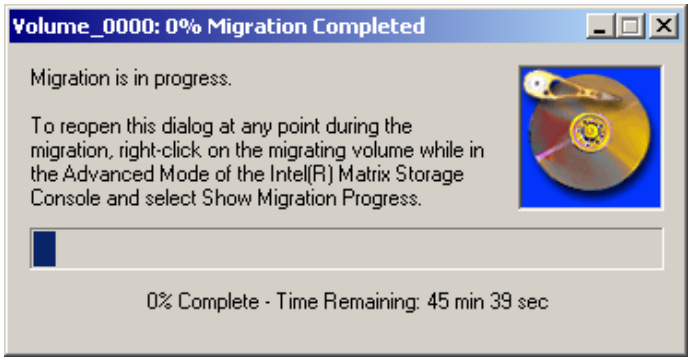
Note: The minimum required size for the RAID volume is determined by the size of the source hard drive. If you create a volume that uses less than 100% of the hard drive space, you may create a second RAID volume to use the remaining space.



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



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

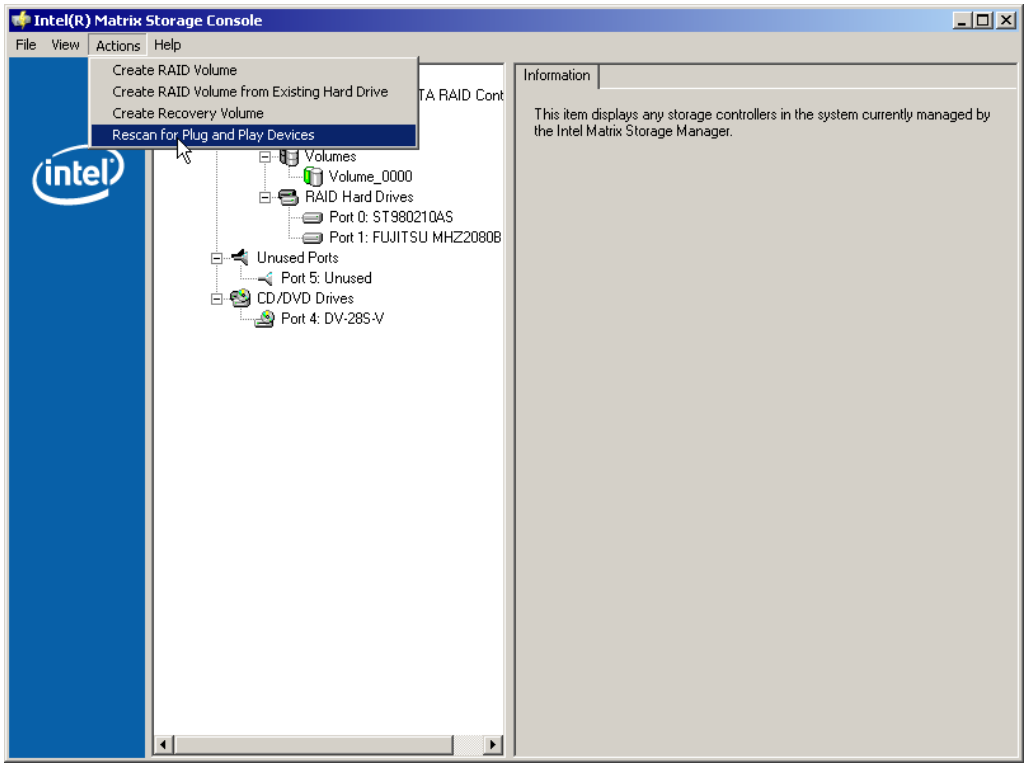


Note: If the above progress screen gets deleted you can monitor the status from the Basic Mode in the Matrix Storage Manager.

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.

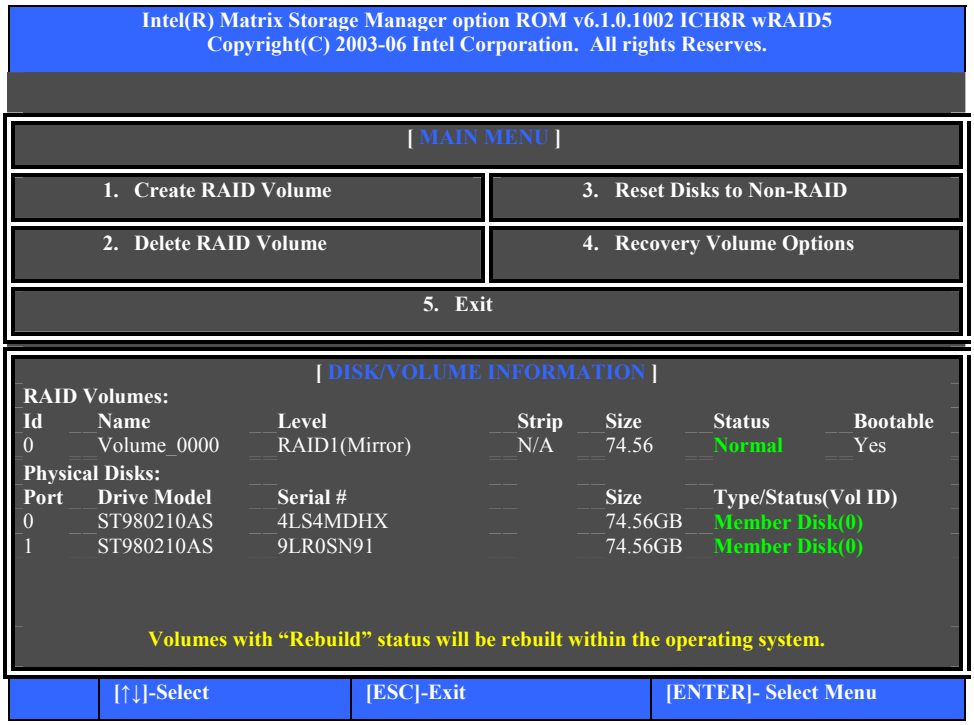


RAID Option ROM

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 8: 2x20 Customer Display Interface

Introduction

The 2x20 Customer Display consists of a Vacuum Florescent Display (VFD) with two rows of twenty 5x8 dot matrix characters, an RS-232 serial interface, driver circuitry, DC to DC/AC converter, and a character generator.

General Specifications

Item	Value
Number of characters	2 Rows x 20 Characters
Character Configuration	5x8
Character Height	8.86 mm
Character Width	3.90 mm
Character Pitch	5.15 mm
Line Pitch	9.64 mm
Peak Wavelength of Illumination	505 mm
Luminance	350 Cd/m2 (102 fL) (Minimum), 700 Cd/m2 (204 fL) (Typical)

Serial Communication Interface

The display receives commands and data from the host using an RS-232 serial interface, framed at 9600 baud, 8 data bits, no parity, and one stop bit.

Command Codes

User Defined Character Definition (08h, CODE, Byte1…Byte5)

This command defines a user defined character (UDC). The UDC character code is set by the CODE byte and must be 00H to 07H. All other values for CODE will be ignored by this command. The five bytes following a valid CODE byte define the character. D1 through D40 represent the character dots. A (1) indicates the dot is on and (0) indicates the dot is off in the following format:

D1	D2	D3	D4	D5
D6	D7	D8	D9	D10
D11	D12	D13	D14	D15
D16	D17	D18	D19	D20
D21	D22	D23	D24	D25
D26	D27	D28	D29	D30
D31	D32	D33	D34	D35
D36	D37	D38	D39	D40

5 x 8 Dot Matrix Character

BYTE#	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
1	D1	D2	D3	D4	D5	D6	D7	D8
2	D9	D10	D11	D12	D13	D14	D15	D16
3	D17	D18	D19	D20	D21	D22	D23	D24
4	D25	D26	D27	D28	D29	D30	D31	D32
5	D33	D34	D35	D36	D37	D38	D39	D40

Character Table Select (09h, TABLE CODE)

This command selects which character table to display. The TABLE CODE byte determines the character set as defined in the table below. If bits 0 to 3 are all zero then this command is ignored. When a new character table is selected all characters on the display will be updated to display the character of the new table. After a reset the character table is set to Table 1.

Table Code	Character Table
01h	Table 1
02h	Table 2
03h	Table 3
04h	Table 4

Clear Display (12h)

This command sets all 40 characters to `20h (space)` and moves the cursor to the first position of the top line.

Luminance Control (11h, LUMINANCE)

This command selects the display luminance. The LUMINANCE byte sets the display luminance level as defined in the table below. This command is ignored if the LUMINANCE byte is `00h`.

LUMINANCE	Display Luminance
01h	25%
02h	50%
03h	75%
04h	100%

Cursor Position (10h, POSITION)

This command sets the cursor position. The POSITION byte moves the cursor position according to the table below. The next character byte writes to the new position and the cursor auto-increments to the next position. This command is ignored if the POSITION byte value is greater than `27h`.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
1	00h	01h	02h	03h	04h	05h	06h	07h	08h	09h	0Ah	0Bh	0Ch	0Dh	0Eh	0Fh	10h	11h	12h	13h
2	14h	15h	16h	17h	18h	19h	1Ah	1Bh	1Ch	1Dh	1Eh	1Fh	20h	21h	22h	23h	24h	25h	26h	27h

Reset (13h)

This command resets the module to the following conditions:

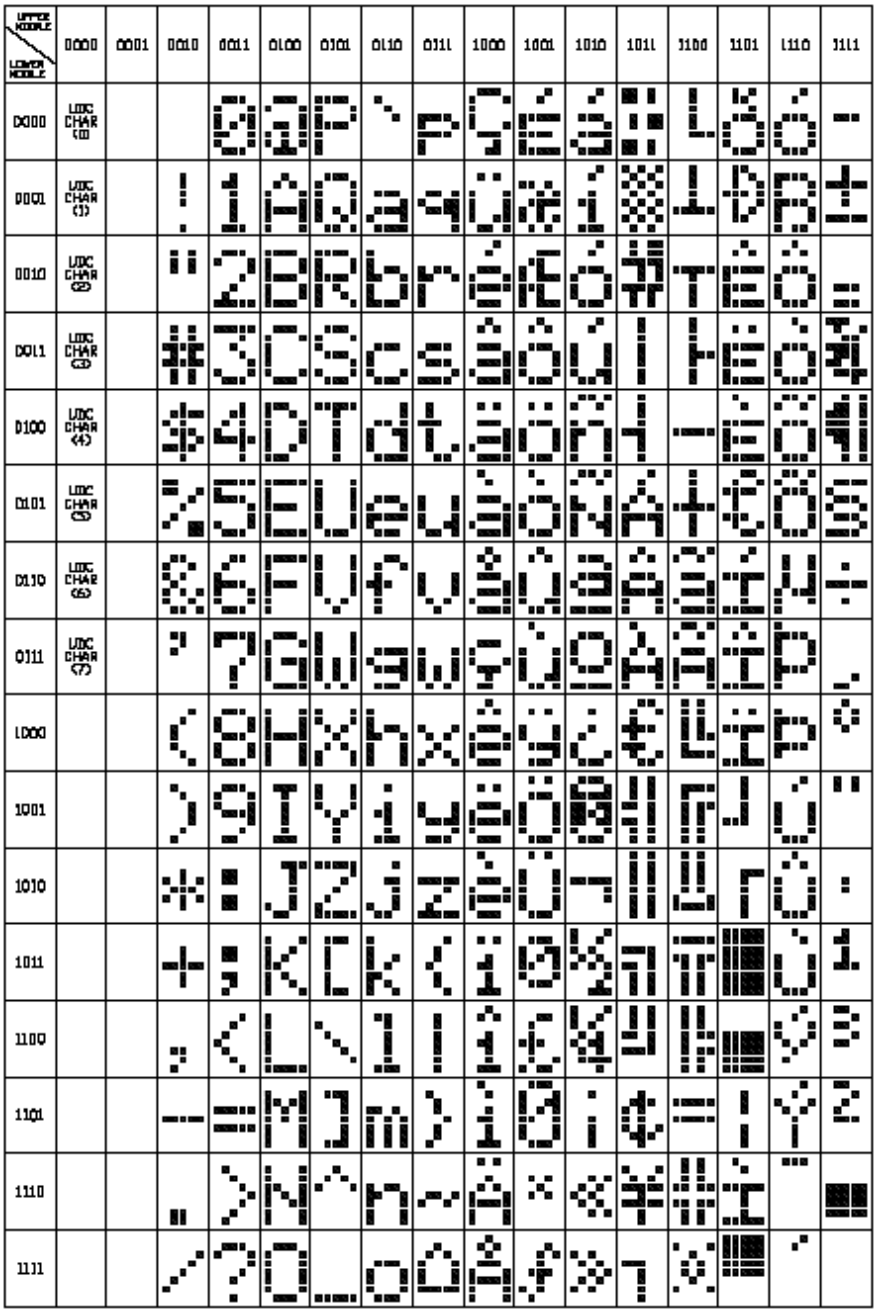
- 100% luminance
- All 5x8 dot matrix characters set to `20h (space)`
- Cursor position set to `00h`
- Character table set to Table 1
- All user defined characters cleared

Character Tables and Codes

Data is written to the display one byte at a time. If the byte received is greater than 1Fh it is considered as 5x8 dot matrix character data. This character is written to the current cursor position and the cursor position is then incremented by one. When data is written to the last character position of the top line the cursor position moves to the first position of the bottom line. When data is written to the last character position of the bottom line the cursor position moves to the first position of the top line.

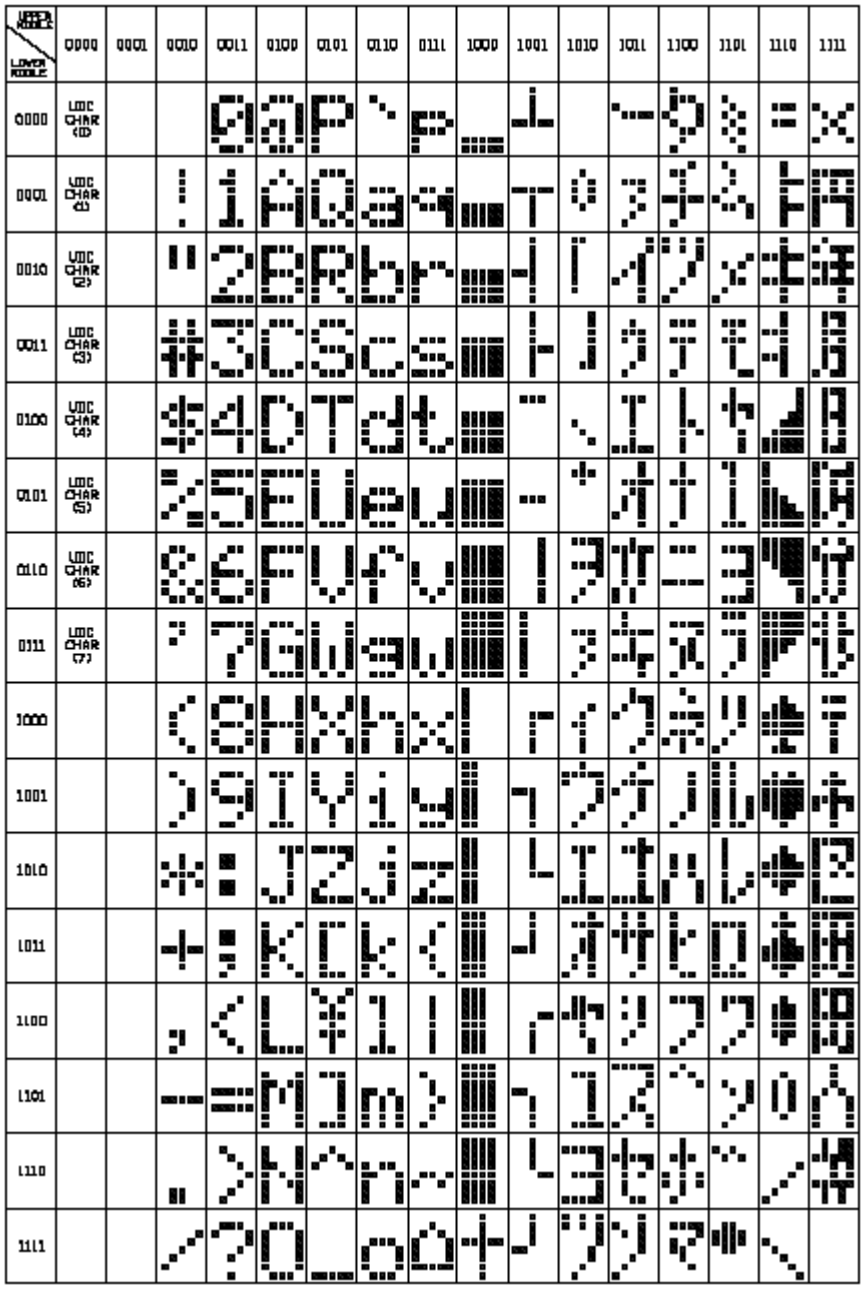
CP437

CP858



CP866

CP932



Chapter 9: Cash Drawer Interface

Customers/partners needing cash drawer interface information should contact their NCR representative.

Chapter 10: Wedge to USB MSR Software Migration

Overview

The purpose of this chapter is to explain configuration and software installation changes that are required to migrate your OPOS/JavaPOS application from a Wedge MSR to a USB MSR.

Note: This only applies to OPOS/JavaPOS applications running in Windows Operating Systems. USB is not supported under DOS.

It is assumed that the person who is performing this operation is an IT person for the customer or ISV who has a 7403 configured and working with a Wedge MSR.

The following are the topics are discussed.

- Software Requirements for USB MSR
- Retail Platform Software for Windows Versions
- Potential Operational Differences Between Wedge MSR and USB MSR
- Deployment Considerations

Software Requirements

The software that supports the USB MSR is available in the *Retail Platform Software for Windows* (RPSW), version 1.3.0 (or later).

Setting up the software to support the USB MSR requires two components. The first is to have the OPOS Service Object and supporting DLL installed on the system, and the second is to have the OPOS Profile configured properly to use this software.

1. OPOS Service Object and Supporting DLL
   - Service Object: `NCRMSR.DLL`
   - Supporting file: `NCRHID_DLL.DLL`
2. The OPOS Profile must have the following properly configured:
   - Programmatic ID: `NCRFitClient.MSR`
   - MSR Interface: `USB`

RPSW versions 1.5.2 (and above) installs the correct DLLs onto the system when default installation options are chosen, but they do not create a default profile that uses the `MSR`. RSPW versions 3.0.1.0 (and later) does create a default profile (`NCRMSR.2`) that uses the `NCRFitClient.MSR.` However, the MSR Interface is set to *Integrated*. Changing this to *USB* creates a profile that works with the 7403 USB MSR.

For RPSW versions before 1.5.2 the DLLs required to use the USB MSR are not installed by default configuration selections. In order to use these versions with the USB MSR a modified installation must be performed. The *NCR5932 Service Object* feature must be added when performing the installation. A default profile (`NCRMSR.3`) is created and properly configured during installation to use the USB MSR.

On your current Wedge MSR you are most likely using either the default OPOS Wedge profile (`NCRMSR.1`) or a profile with a name of your choice, which is configured the same as the default profile. If you want to keep the same profile name you must replace the existing Wedge configured profile with a profile by the same name configured to use the USB MSR. Below is the default NCRMSR.3 profile showing the proper configuration options for using the USB MSR.

```
[HKEY_LOCAL_MACHINE\SOFTWARE\OLEforRetail\ServiceOPOS\MSR\NCRMSR.3]
@="NCRFitClient.MSR"
"Description"="NCR 74XX MSR Service Object"
"MSR"="USB"
"NCRVersion"="2.4.1.0 -> NCR Release File Version"
"ProductID"="0 -> ProductID: Maximum 0xFFFF hex"
"TimeOut"="800"
"Type"="ISO"
"VendorID"="0 -> VendorID: Maximum 0xFFFF hex"
"Version"="1.3.0"
```

Nortice the default value for the *Programmatic ID* is `NCRFitClient.MSR` and that the *MSR type* is `USB`. The *VendorID* and *ProductID* are `0` so any USB MSR that is detected will be used.

IMPORTANT NOTE:
The `NCRFitClient.MSR` profile through FitClient LE or RSM LE has an option for *Tone*. This must be **Disabled** (set to False) for USB MSR. If it is set to **Enabled** (True) the MSR will not work.

Potential Operational Differences

While the OPOS API is designed to hide differences between devices it is possible that you may see some differences between the Wedge MSR and the USB MSR in error reporting.

If you use the UnifiedPOS (OPOS) AutoDisable feature by setting this property to TRUE, it is strongly recommend that you upgrade your RPSW to 3.0.1.0. The MSR can get into a locked condition if certain swiping errors occur.

Deployment Considerations

When deploying this software change you may need to perform the following, depending on the current version of RSPW on your terminals.

1. Modified installation to add the NCR5932 feature.
2. Upgrade to the latest version of RPSW; 3.0.1.0.
3. Replace the current OPOS Wedge MSR Profile with a profile configured for USB MSR.

Local Update

If you have a small number of terminals and your application permits access to the Windows Desktop you may simply want to modify each terminal by running Add/Remove Programs under the Control Panel.

If the RPSW .MSI file was deleted after the initial installation you will need to copy or run the current version of RPSW from a USB Drive. You can then run the FitClient LE or RSM LE, depending on your version of RPSW, delete your current Wedge MSR profile, and create a new profile with the same name. Choose the *Programmatic ID* of `NCRFitClient.MSR` and *MSR Interface* of `USB`.

Remote Deployment

If you have a large number of terminals you may want to deploy the changes remotely from either a Store Server or an Enterprise WAN.

To prepare an OPOS Profile for deployment it is recommended that you install RPSW on a system where you can run the FitClient LE and RSM LE to generate an OPOS Profile with the name required and configured for the correct *Programmatic ID* (`NCRFitClient.MSR)` and *MSR Type* (`USB`). Use REGEDIT to export the profile into a .reg file. On the target systems you can then import the .reg file with REGEDIT.

RPSW can be installed silently from a command line using parameters to install the necessary NCR5932 feature.

```
INSTALLOPOS_SO_5932=YES
```

Full details on the command line information can be found on the NCR Support Website. Download the RPSW files (D370-0782-0100_03.00.01.00.zip). See the *Command Line Parameters for Retail Platform Software for Windows*.

Both the importing of the .reg file with REGEDIT and the RPSW installation of the NCR5932 feature can be done remotely with the RSM SE utility by creating a deployment package. See the documentation for the RSM SE for detailed information on how to create deployment packages.

Note: Customer/ISV infrastructure can be used for deploying and executing files.

Chapter 11: Maintenance

Cabinet and Touch Screen Cleaning Procedures

1. Disconnect the unit from the power outlet before cleaning.
2. Use a soft cloth dampened lightly with a mild non-abrasive soap & water solution or 70% Isopropyl Alcohol.
3. Gently wipe the subject area clean.
4. Wipe the damp areas dry. Make sure the glass and touch screen edges are completely dry before using the unit.
5. Avoid getting any liquids inside the unit. If liquid does get inside, have a qualified service technician check it before you power it on again.
6. Remove (vacuum) extra dust from around the cooling vents (See *Cooling Vent Cleaning* section).

Cleaners/Solvents to Use

Use the following cleaner/solvents to clean the unit.

- Mild Non-Abrasive Soap and Water Solution

  or

- 70% Isopropyl Alcohol

Cleaners/Solvents to NOT Use

Do NOT use any of the following to clean the unit. They can damage the unit.

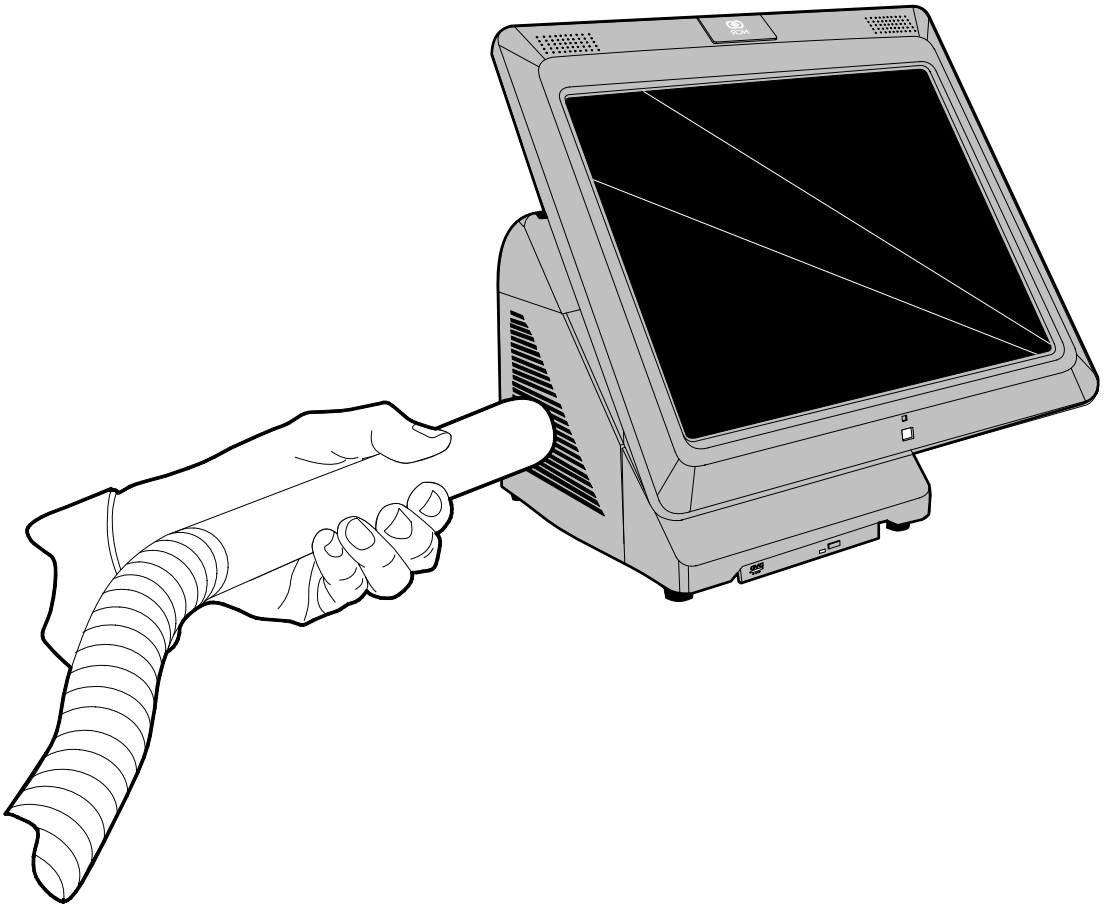
- Methyl Alcohol
- Degreasers
- Ethyl Alcohol
- Ammonia-based Cleaners such as glass cleaners (Windex)
- Abrasive Cleaners
- Vinegar Cleaners
- Any Strong Dissolvent
- Thinner
- Benzene
- Compressed Air.
- Solvents
- Bleach

Cooling Vent Cleaning

The air vents on the side of the terminal should be cleaned periodically to maintain optimum cooling for the CPU.

Procedure

1. Shut the system down and disconnect the AC power cord.
2. Use the hose attachment on a standard household vacuum cleaner to remove the dust from the vents. Clean the vents on both sides of the terminal.



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MSR Cleaning Procedures

MSR Cleaning and Treatment Cards

Part	Part Number
MSR Cleaning Card, Dry	998-0052929
MSR Cleaning Card, Wet	603-9014730 (box of 50)

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.

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.

Chapter 12: Operating System Recovery

Introduction

This chapter discusses procedures on how to recover the Operating System from CD-ROM. If your unit does not have an internal CD-ROM drive you can use one of the following:

- Teac USB External 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

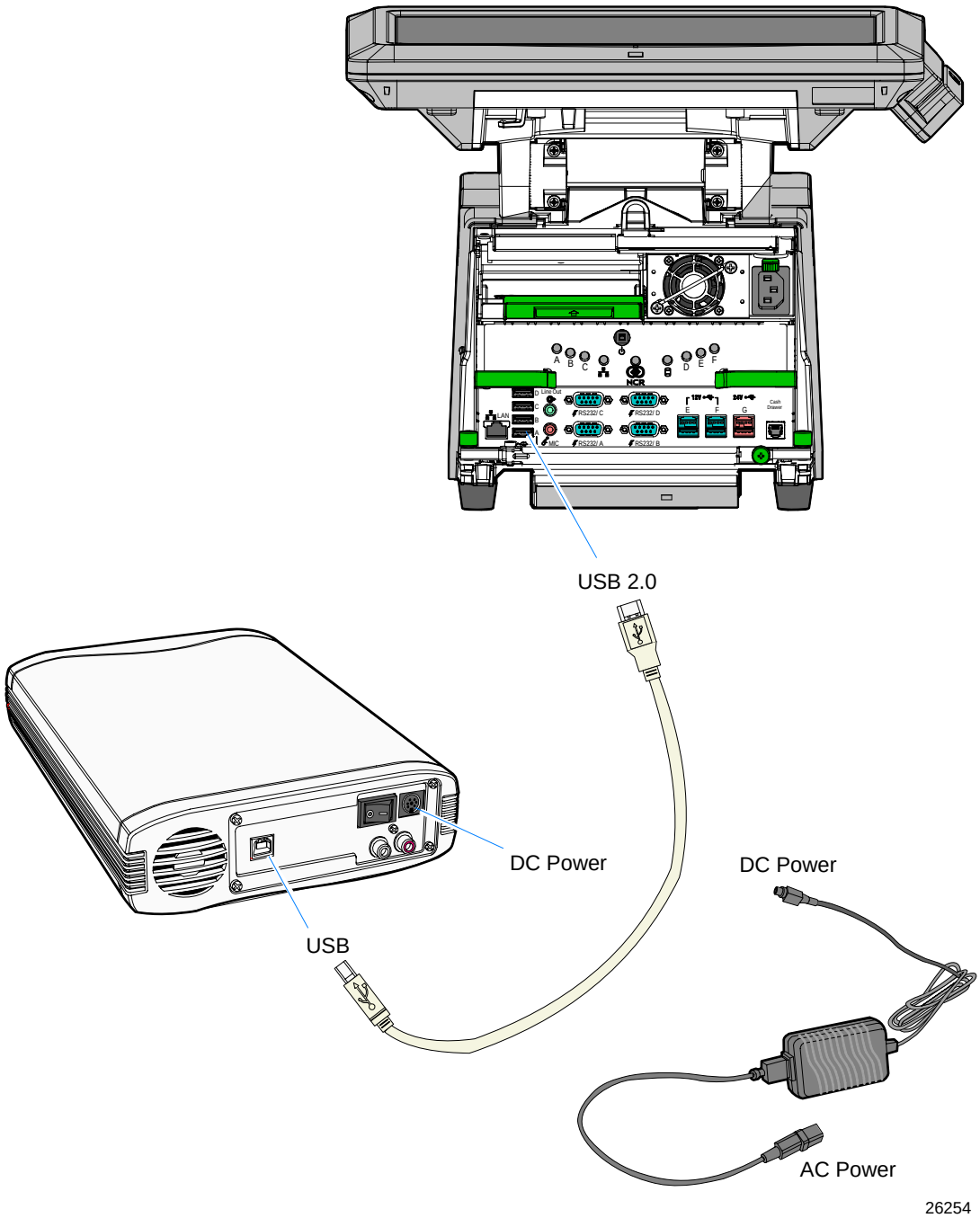
The following are required in order to perform an OS recovery from a CD.

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

Connecting an External CD-ROM Drive

If your terminal contains an integrated CD-ROM, skip to *OS Recovery Procedures*.

1. Connect the external CD-ROM drive to the *USB* connector on the terminal.



1. Connect the Power Supply to the *DC Power* connector on the CD-ROM and to an AC outlet.
2. Apply power to the CD-ROM drive (switch on the back).

OS Recovery Procedures

1. Insert the *NCR Partition Image Application* CD (D370-0605-0100) into the CD drive.
2. Connect a keyboard to the terminal.
3. Apply power to the terminal.
4. Press **[F8]** during boot (when you see the NCR logo) to enter the Boot Select menu.
5. 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**.
6. You should see a message during boot, indicating that the CD-ROM has been recognized.
7. At the menu, enter **1** to select the image restore function and press **[Enter]**.

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

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

8. At the prompt, insert the CD containing the operating system image (disk 1 if OS occupies more than one disk). Press **[Enter]**.
9. Press **[A]** at the following prompt to accept the arguments and to begin the restore process. Press **[Enter].**

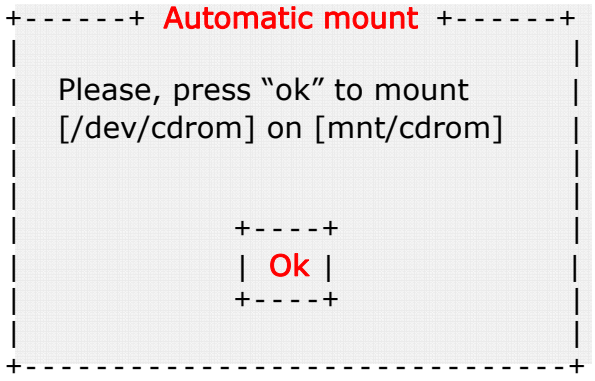
```
Confirm Pending Operation

           Mode is: restore

        2) Drive is: USB/SATA Storage A  Size: 80GB
        3) Directory path is: /Images/
        4) Filename is: nnnnnaaa
        5) Reboot after operation complete: yes
        6) Resize last data partition if possible: no
        7) Resize last data partition to: Full Disk

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

10. At the following prompt replace the CD with the next CD. Press **[Enter]** to continue.



11. Repeat the previous step for each CD as required.
12. Remove the last CD before the system reboots.
13. Complete the OS installation as required per OS.

Chapter 13: 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.

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 **Support**.
  b. Under Related Items, Services; select **Drivers and Patches**.
  c. Select **Retail Support Files**.
  d. Select **Retail Platform Software**.
  e. Under Terminals, select **7403**.
  f. Select **BIOS**.
  g. 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 6.2.8.1 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 6.2.8.1 or later.

  h. 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 7403.
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 this method you see a prompt for terminal *Class/Model/Serial* information if the program detects invalid information in the current BIOS, or if you are replacing the processor board, in which case there is no *Class/Model/Serial* information in the BIOS.

   Important: I 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. After a few seconds the terminal reboots again.
4. As the terminal reboots select the boot media again **[F8]** (if necessary) to have the terminal boot from the SPI/BIOS media.
5. Let the terminal boot from Option #1 (default).
6. 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).
7. Remove the SPI/BIOS Update media before the system boots.
8. 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: `7403-5000-8801` **[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: `7403-5000-8801` **[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. After a few seconds the terminal reboots again.
6. As the terminal reboots select the boot media again **[F8]** (if necessary) to have the terminal boot from the SPI/BIOS media.
7. Let the terminal boot from Option #1 (default). The Manageability Engine (ME) is programmed at this time.
8. At the prompt:
   `(Press <0> for command prompt, or <3> to reboot (automatic in 10 seconds)`
   press **[3]** to reboot.
9. 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).
10. 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: `7403-5000-8801` **[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 14: BIOS Settings

Entering Setup

1. Connect an alphanumeric USB keyboard to the terminal.
2. Apply power to the terminal.
3. 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.

BIOS Default Values

BIOS Version: 6.2.4.0

Main Menu

System Time	(variable)
System Date	(variable)

Advanced Menu

CPU Configuration	
Hardware Prefetcher	[Enabled]
Adjacent Cache Line Prefetch	[Enabled]
Max CPUID Value Limit	[Disabled]
Execute-Disable Bit Compatibility	[Enabled]
Intel(R) SpeedStep(tm) tech	[Enabled]
Intel(R) C-STATE tech	[Enabled]
Spread Spectrum	[Enabled]
IDE Configuration	
Mirrored IDER Configuration	[Enabled]
Configure SATA#1 as	[RAID]
Hot Plug	[Enabled]
Hard Disk Write Protect	[Disabled]
IDE Detect time Out (Sec)	[35]
ATA(PI) 80Pin Cable Detection	[Host & Device]
SuperIO Configuration	
Serial Port A Address	[3F8/IRQ4]
Serial Port B Address	[2F8/IRQ3]
Serial Port B Mode	[Normal]
Serial Port C Address	[3E8]
Serial Port C IRQ	[IRQ11]
Serial Port D Address	[2E8]
Serial Port D IRQ	[IRQ10]
Serial Port E Address	[2E0]
Serial Port E IRQ	[IRQ06]

System Hardware Health Monitoring	
Motherboard HHM	
I/O Board HHM	
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	
Energy Lake Feature	[Disabled]
APIC ACPI SCI IRQ	[Disabled]
UB Device Wakeup From S3/S4	[Enabled]
High Performance Event Timer	[Enabled]
HPET Memory Address	[FED00000h]
AHCI Settings	
AHCI BIOS Support	[Enabled]
AHCI CD/DVD Boot Time out	[35]
AHCI Port0 [Hard Disk]	
SATA Port0	[Auto]
S.M.A.R.T.	[Enabled]
AHCI Port1 [Not Detected]	
SATA Port1	[Auto]
S.M.A.R.T.	[Enabled]
AHCI Port2 [Not Detected]	
SATA Port2	[Auto]
S.M.A.R.T.	[Enabled]
AHCI Port3 [Not Detected]	
SATA Port3	[Auto]

S.M.A.R.T.	[Enabled]
AHCI Port4 [ATAPI CDROM]	
SATA Port4	[Auto]
AHCI Port5 [Not Detected]	
SATA Port5	[Auto]
S.M.A.R.T.	[Enabled]
ASF Configuration	
ASF Support	[Enabled]
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	
TCG/TPM Support	[Yes]
Execute TPM Command	[Enabled]
TPM Enable/Disable Status	[No State]
TPM Owner Status	[No State]
USB Configuration	
USB Devices Enabled:	
1 Keyboard, 1 Mouse	
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]
AddOn RoM Display Mode	[Force BIOS]
Bootup Num=Lock	[On]
PS/2 Mouse Support	[Disabled]
Wait For ‘F1’ If Error	[Disabled]
Hit ‘DEL’ Message Display	[Enabled]
Interrupt 19 Capture	[Disabled]
Boot Type	[Cold Boot]
Boot Order Defaults	[LAN First]
BBS PopUp Menu	[Enabled]
Power Button Override	[Enabled]
Boot Device Priority	
1st Boot Device	[Network:IBA GE Slo]
2nd Boot Device	[HPM.1.10.14.56] (Hidden Partition Manager)
3rd Boot Device	[CD/DVD:P1-DV-28S-V]
4th Boot Device	[RAID:ST380215AS] (Hard Drive)
Hard Disk Drives	
1st Drive	[RAID:ST380215AS]
CD/DVD Drive	
1st Drive	[CD/DVD:P1-DV-28S-V]
Initiate Pre-boot Services	[Hot Key]

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

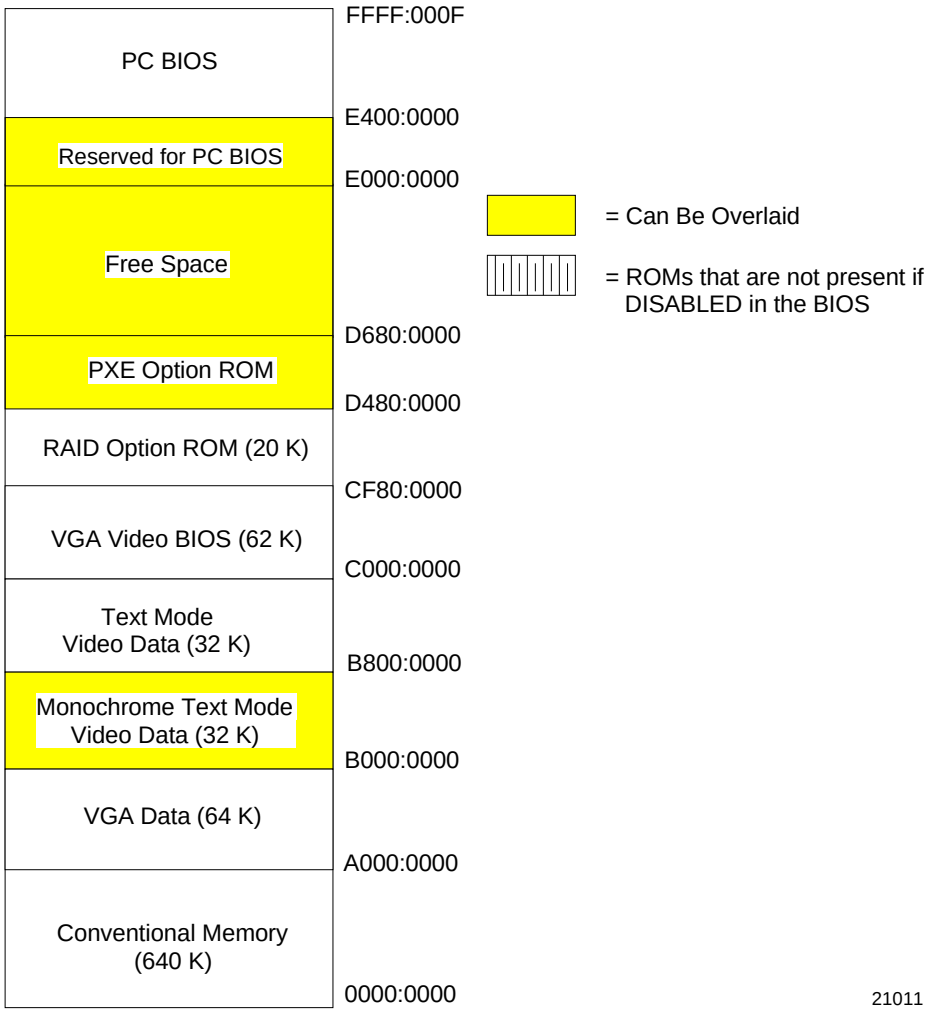
NorthBridge Configuration	
Memory Hole	[Disabled]
Boots Graphic adapter Priority	[PEG/PCI]
Internal Graphics Mode Select	[Enabled, 32MB]
Max TOLUD	[3G Bytes]
Gfx Low Power Mode	[Enabled]
PEG Port configuration	
PEG Port	[Auto]
Video Function Configuration	
DUMT Mode Select	[DUMT Mode]
DUMT/FIXED Memory	[256MB]
PAVP Mode	[Disabled]
Boot Display Device	[VBIOS-Default]
Flat Panel Type	[Type 3]
Backlight Control Support	[VBIOS-Default]
BIA Control	[VBIOS-Default]
TV Standard	[VBIOS-Default]
Spread Spectrum Clock	[Disabled]
HDCP Support	[Disabled]
South Bridge Configuration	
USB Functions	[12 USB Portal]
USB Port Configure	[6X6 USB Ports]
USB 2.0 Controller	[Enabled]
GbE Controller	[Enabled]
GbE LAN Boot	[Enabled]
GbE Wake Up From S5	[Disabled]
Had Controller	[Enabled]
SLP_S4# <om./ Assertion Width	[4 to 5 seconds]
Restore on AC Power Loss	[Last State]
PCIE Ports Configuration	
PCIE Port 0	[Enabled]
PCIE Port 1	[Enabled]

PCIE Port 2	[Enabled]
PCIE Port 3	[Enabled]
PCIE Port 4	[Enabled]
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]
USB Port Configuration	
USB Port A	[Enabled]
USB Port B	[Enabled]
USB Port C	[Enabled]
USB Port D	[Enabled]
USB Port E	[Enabled]
USB Port F	[Enabled]
USB Port G	[Enabled]
USB Port H	[Enabled]
USB Port I	[Enabled]
USB Port J	[Enabled]
USB Port K	[Enabled]
USB Port L	[Enabled]
Me Subsystem Configuration	
ME HECI Configuration	
ME-HECI	[Enabled]
ME-IDER	[Enabled]
ME-KT	[Enabled]

A

Appendix A: Memory Map

ACPI BIOS 6.2.3.0



DOS Considerations

EMM386 must be configured with the correct parameters, based on the BIOS Memory Map.

B

Appendix B: IRQ Settings

BIOS Version 1.0.0.0

Interrupts

Default Settings

IRQ	System Resource	IRQ Priority
1	Reserved	1
3	COM B/2F8	8
4	COM A/3F8	9
5		10
6	COM E/2E0	11
7		12
8	Real Time Clock	13
9		14
10	COM D/2E8	15
11	COM C/3E8	3
12	Available/PS/2 Mouse	4
13	Co-CPU	5
14	IDE 1 (IDE Mode only)	6
15	IDE 2 (IDE Mode only)	7
PCI Devices (Require 1 IRQ each)	Video, USB1, USB2, USB3, EHCI, LAN, Audio, Touch	