

Installing Your Explora Family System

Part Number 9300385 Rev A
November, 1995

Network Computing Devices
350 North Bernardo Ave.
Mountain View California 94043

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Warnings and Certifications

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

You are cautioned that any changes or modifications not expressly approved in this manual could void your authority to operate this equipment.

This digital apparatus does not exceed the Class A limits for radio noise emissions from digital apparatus set out in the Radio Interference Regulations of the Canadian Department of Communications.

Le présent appareil numérique n'émet pas de bruits radioélectriques dépassant les limites applicables aux appareils numériques de la classe A prescrites dans le Règlement sur le brouillage radioélectrique édicté par le ministère des Communications du Canada.

Declaration of Conformity

Manufacturer's Name: Network Computing Devices, Inc.

Manufacturer's Address: 350 N. Bernardo Ave, Mountain View, CA 94043

Type of Equipment: X-Terminal

Model No.: Xplora and Xplorapro family of System Bases and Systems

Application of Council Directives: 89/336/EEC, 73/23/EEC

Standards to which Conformity is Declared: EN 55022, EN 50082-1, EN 60950

Importer's Name: Network Computing Devices (UK) Limited

Importer's Address: Unit 10, Grove Park 2, Waltham Road, White Waltham, Maidenhead Berkshire, England SL6 3LW

We hereby declare the equipment specified above conforms to the above Directives and Standards.

Andrew Hall, Director, Technical Services Northern Europe, NCD (UK) Ltd., August 1995

About the Explora Family

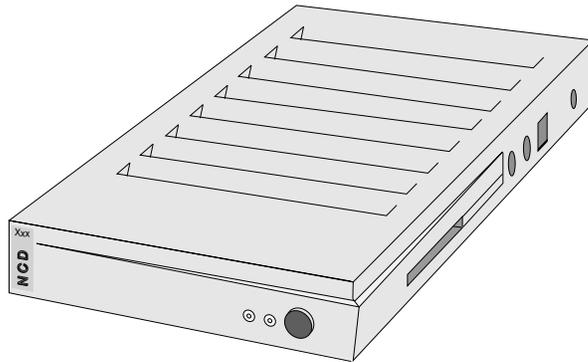
The Explora family consists of a base unit, several different monitors, a mouse, and several keyboards. The base unit can be purchased alone or with a monitor. The base supports many standard VGA or SVGA third party monitors.

Explora Family Features

The Explora bases are advanced, small- signature X terminals that include the following features:

- VGA/SVGA monitor support
- PS/2 mouse support
- Multiple keyboard choices
- Serial (RS-232 C) connection
- Parallel connection
- Externally accessible PCMCIA card slot
- Built-in twisted-pair and/or thin Ethernet connections (depending on model)

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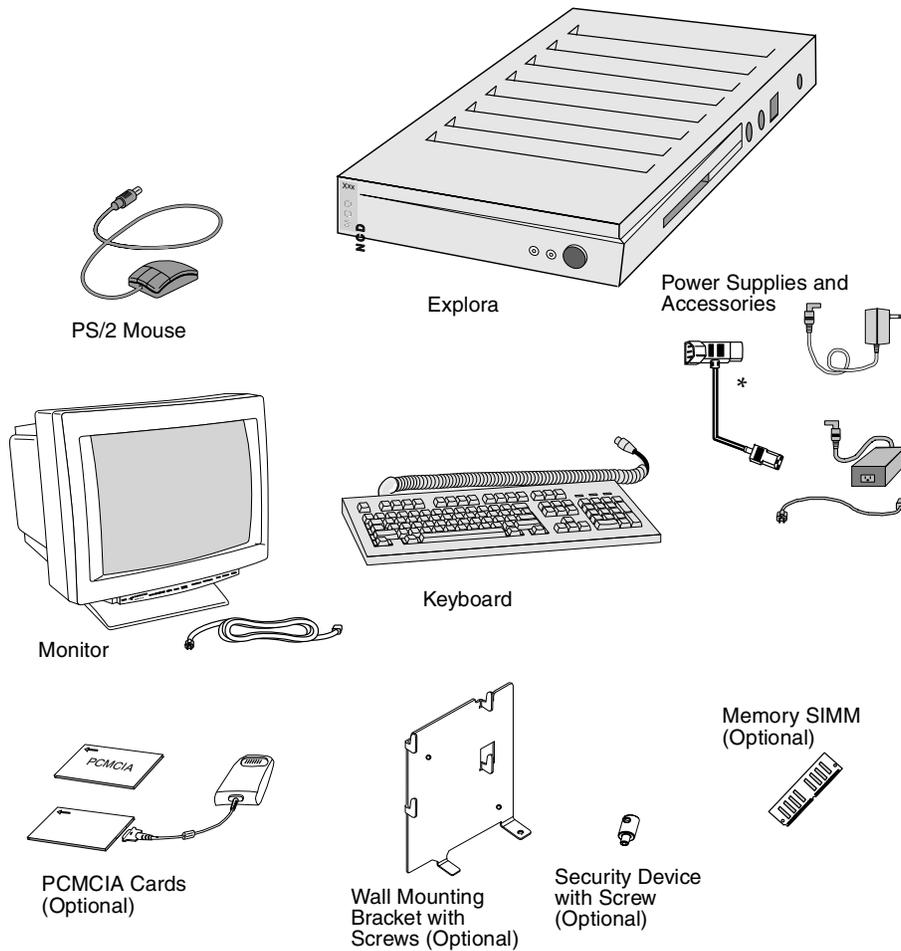
The base is ergonomically designed with as small a footprint as possible, making it ideal for environments where space is at a premium. Table 1 lists the physical dimensions of the base.

Table 1: Explora Dimensions

Dimension	Explora
Height	1.625 inches (4.13 cm)
Width	7.25 inches (18.42 cm)
Depth	10.00 inches (25.40 cm)
Weight	1.51 pounds (0.686 kg)

Explora Product Line

2



After unpacking the shipping cartons, make sure you have all of the standard components and any optional components you may have ordered. If any components are missing or appear damaged, contact NCD at (415) 694-0650 or your representative immediately.

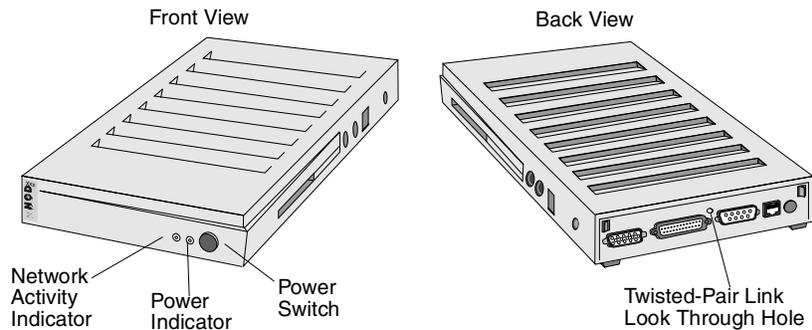
Note Optional equipment installation is covered in Section 5.

* Optional Single Power Source Attachment, see Section 5.

Basic Installation

Controls and Indicators

The controls and indicators are the same for all the models in the Explora family.



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Note If you are installing additional memory in your base, do not complete the basic installation until you have installed the memory. Go now to Section 5, Installing Optional Equipment.

Connections



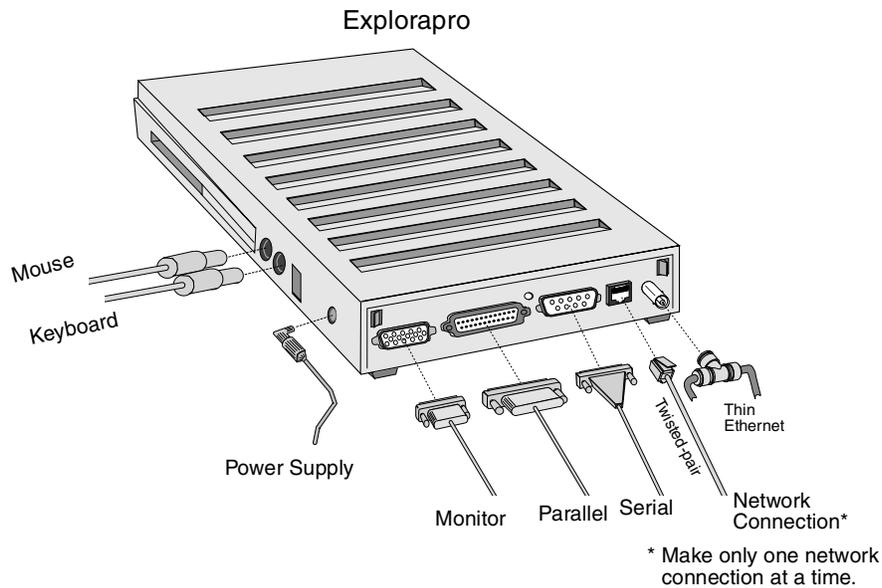
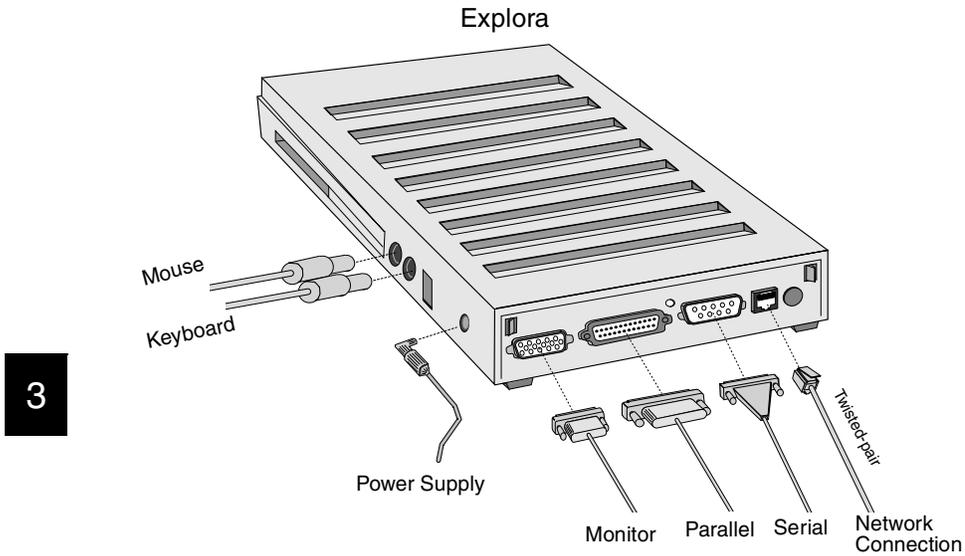
Before connecting any cables, make sure the power is off.
Vor dem Anschließen von Kabeln sicherstellen, daß die Stromzufuhr unterbrochen ist.



Do not connect any power cords to the Explora unless the monitor, keyboard, and mouse are properly connected.
Kein Netzkabel in den Explora stecken, sofern Monitor, Tastatur und Maus nicht ordnungsgemäß angeschlossen sind.

Note Explorapro has both twisted-pair and thin Ethernet connectors for making network connections. Explora has only a twisted-pair connector.

Look at the appropriate diagram for the model you have and make the following connections: keyboard, mouse, monitor, network, and your serial and/or parallel device. Connect the power supply last.



Caution

Do not set the monitor on top of the base. The base is not designed to hold a monitor.

Selecting Screen Resolution

When the terminal is first turned on, the display uses a default resolution, depending on the installed video cable and monitor capabilities. This setting may not provide the highest resolution and refresh rate your monitor supports. See your monitor documentation for supported resolutions.

A menu is provided for selecting the correct resolution and changing the DPI (dots per inch) setting for the monitor. You access this menu through the Boot Monitor.

To change the resolution:

Caution

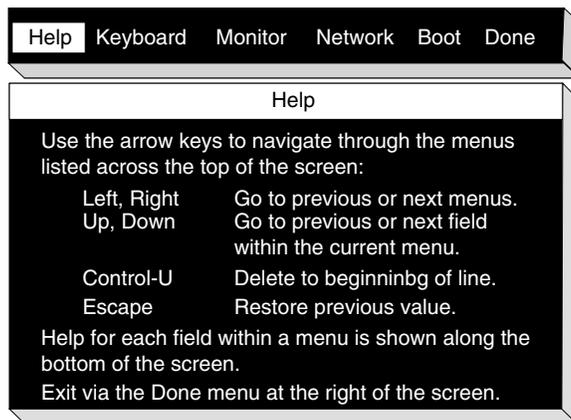
Selecting the wrong screen resolution can damage your monitor. Make sure your selection is supported by your monitor.

1. Turn on the system or reboot (if the system is already on).
2. After the Boot Monitor title and version number, messages similar to the following appear. Press the Escape (Esc) key to interrupt the booting process.

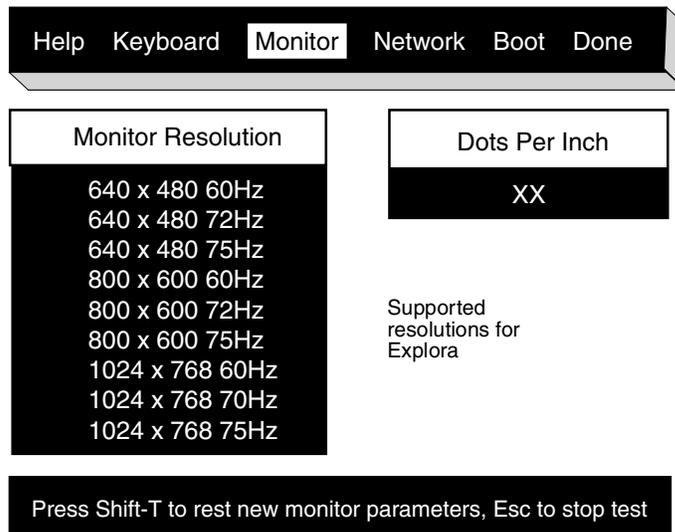
```
Searching for IP address...
Using IP address IP address of terminal
Searching for subnet mask
Using subnet mask subnet mask
.....loaded
```

3. Depending on how the terminal's booting parameters are set, you may see more than one of these messages. Press Escape each time one of them appears. This aborts the load process and puts the system into the Boot Monitor (> prompt).
4. When you're in the Boot Monitor (> prompt), press the Setup (Setup) key (or type se). The Main menu appears.

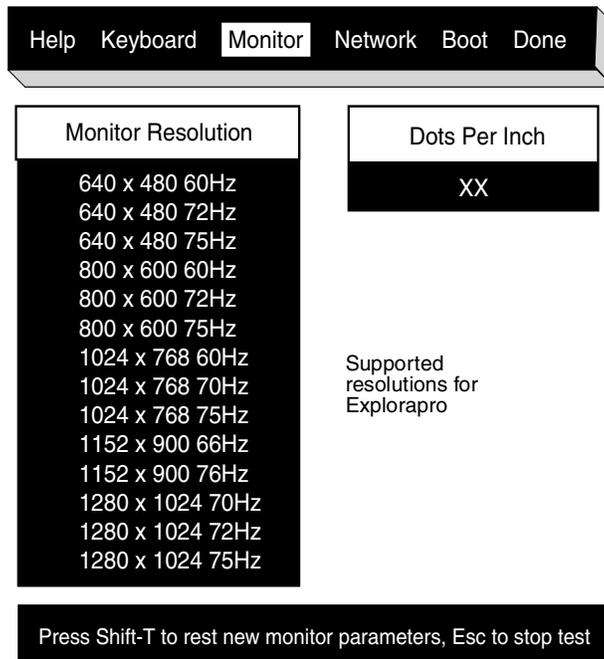
4



- Use the right (→) arrow key to select Monitor. The screen now displays the available monitor resolution settings

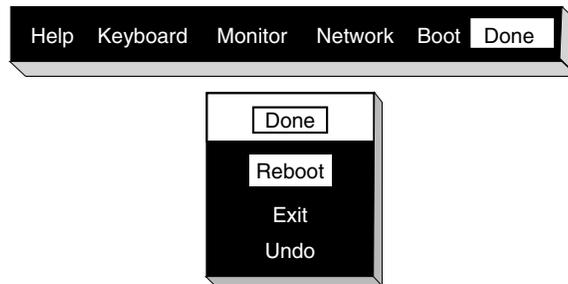


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- Press the up (↑) or down (↓) arrow keys to select the correct setting for your monitor.
- Press the right (→) arrow key to select Dots Per Inch.

8. Enter the numerical value that matches the resolution you have selected. (Or leave the default value.)
9. To test the selected refresh rate, press **Shift -T** . Running this test generates a cross hatch test screen pattern. If the refresh rate you select is not supported by the monitor, the test pattern does not appear.
10. Press any key to return to the Monitor menu.
11. Press the right arrow key to select Done. The following menu appears.



Save Parameters and reboot. Press <Return> to confirm

12. Use the up or down arrow keys to select one of the options from the Done menu.

Reboot -- saves the settings you changed and reboots the system.

Exit -- saves the settings and returns you to the Boot Monitor.

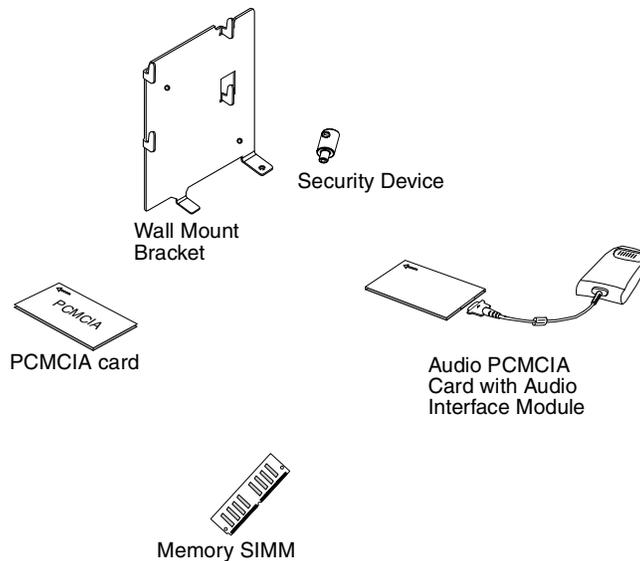
Undo -- reloads the parameters that were in effect when you entered the menus. The system continues to display the menus.

13. Press .

If you save your selection, you do not need to repeat this procedure unless you change to a different type or size of monitor.

Installing Optional Equipment

The following optional equipment is available for your Explora.



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Note If you are adding additional memory, do so before doing the basic installation in the previous section.

Installing Additional Memory

You can add additional memory to your unit at any time. It can be purchased from NCD or other vendors. Contact NCD Technical Support for information about approved vendors. Only SIMMs supplied by NCD are covered under NCD's warranty.

Notes Explora has 4 MB of built-in memory and 1 MB of built-in display memory.

Explorapro has 8 MB of built-in memory and 2 MB of built-in display memory.

You can add one additional SIMM to Explora, and two additional SIMMs to Explorapro.

Table 2 lists the SIMM specifications.

Table 2: SIMM Specifications

Speed	Profile	Thickness	Size
Fast-page mode. 60 nanoseconds (ns) or faster. (Lower ns ratings are faster.) 72-pin.	Low profile (maximum 1.1 inches tall). Tin-plated SIMM contacts should be used.	Board thickness of 0.047 to 0.054 (0.050 inch nominal). Installing SIMMs that are out of specifications may damage the SIMM socket or cause the terminal to behave erratically.	32-bits wide. 1M (256Kx32 SIMM) 2M (512Kx32 SIMM) 4M (1Mx32 SIMM) 8M (2Mx32 SIMM) 16M (4Mx32 SIMM) 32M (8Mx32 SIMM)

Notes When installing additional memory in Explorapro, observe the following rules:

If you are adding only one SIMM, use socket J9.

If you are adding two different size SIMMs, use socket J9 for the larger SIMM.

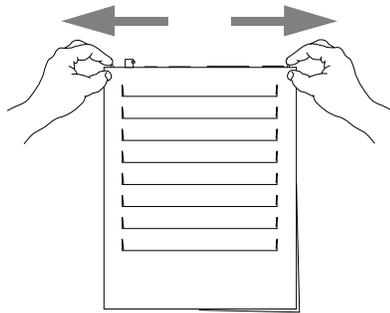
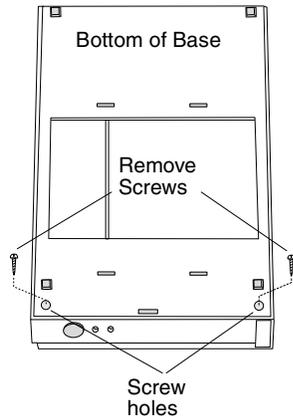
Adding more memory does not improve terminal operation, but may be required by your applications.

Caution

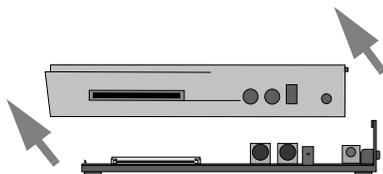
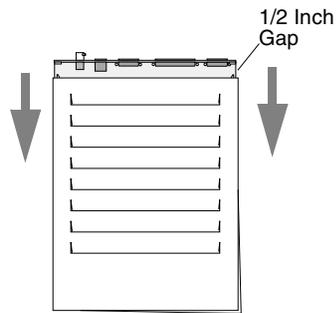
Installing additional memory is a four step procedure: 1) disassembling the terminal base, 2) installing the SIMM(s), 3) reassembling the terminal base, and 4) testing the memory after your terminal is up and running. If you don't feel confident performing these procedures on your terminal, refer the unit to a qualified service center.

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Disassembling the Base



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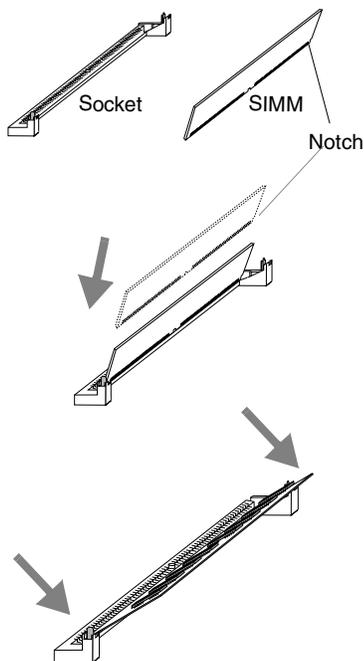
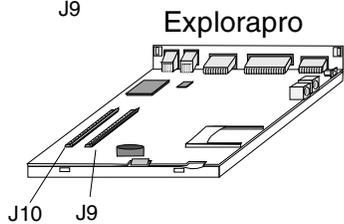
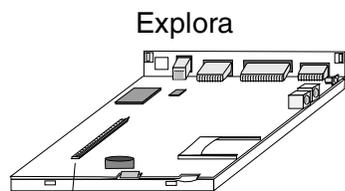
1. Remove all cables connected to the base.
2. Turn the base upside down, and place it on a flat surface, so that the base bottom is facing up and the front is facing you.
3. Locate the two phillips screws in the holes on the base bottom front corners.
4. Remove the two screws.
5. Turn the base over and place it on a flat surface, so that the base top is facing up and the front is facing you.
6. Grasp the tabs protruding from the back of the unit with your forefinger as shown.
7. Gently pull the tabs away from the center and at the same time:
 - apply pressure with your thumbs to the base top and
 - using your thumbs, pull the top cover towards the front. (Towards you.)
8. When the cover is about one-half (1/2) inch from the back of the bottom housing, pull up on the top cover and remove it.

Installing SIMMs

If your base already has a SIMM or SIMMs installed, proceed to the next heading “Removing SIMMs” and then return to this section for installation instructions. If not, follow these steps.

Caution

SIMMs and other components located on the logic board can be damaged by Electrostatic Discharge (ESD). Make sure you touch a suitable ground before handling any SIMM. If possible, set the base on an anti-static mat and wear a grounding strap.



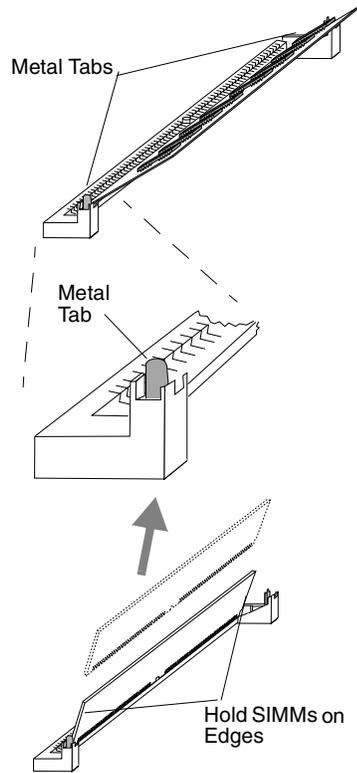
The SIMM socket(s) are located on the left side of the logic board.

To install the SIMM(s):

1. Orient the SIMM so that the notch is facing towards the back of the logic board.
2. Insert the SIMM into the socket at about a 45 degree angle.
3. When you are certain the SIMM is inserted all the way, press down on both ends of the SIMM until it clicks into place. The SIMM should go past the metal tabs on each end of the socket.

The SIMM should lie at about a 25 to 30 degree angle in the socket.

Removing SIMM

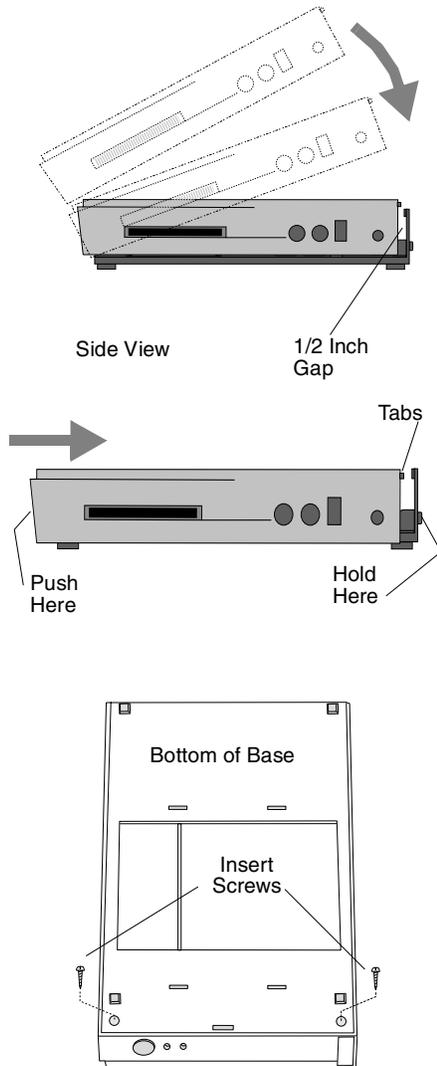


To Remove a SIMM

1. Using your two forefingers or your thumbs, pull back on the two metal tabs located on each end of the SIMM socket.
2. As you pull back on the tabs, the SIMM pops up past the metal tabs.
3. Hold the SIMM on both ends (you should always handle SIMMs by the edges only), and remove it from the socket.

Reassembling the Base

To reassemble the base, follow these steps:



1. Swing the front of the top cover over the front edge of the bottom section and continue down with the rest of the top cover unit it covers the bottom section (this is a tight fit). There should be a one-half (1/2) inch gap between the bottom section back, and the top cover back.

Note Make sure the top cover is resting completely flat on the bottom section before doing step 2.

2. Hold the back of the bottom section and push the top cover toward the back until the two tabs click through the two openings on the bottom section.
3. Once the top cover and bottom section are together as a unit (base), turn it upside down, so that the base bottom is facing up and the front is facing you.
4. Secure the base together by screwing in the two phillips screws into the two holes located at the front corners on the bottom.
5. Tighten the screws so they are snug, but do not over tighten.
6. Turn the base upright and refer to Section 3, to install the cabling.
7. After the system is installed, perform the memory test, presented next.

Testing Memory

Before running the memory test, go to Section 3, “Basic Installation” and install the rest of the system.

To run the memory test, you need to access the Boot Monitor.

Accessing the Boot Monitor

1. Turn on the system or reboot (if the system is already on).
2. After the Boot Monitor title and version number, messages similar to the following appear. Press the Escape (**Esc**) key to interrupt the booting process.
Searching for IP address...
Using IP address **IP address of terminal**
Searching for subnet mask
Using subnet mask **subnet mask**
.....loaded
3. Depending on how the terminal’s booting parameters are set, you may see more than one of these messages. Press Escape each time one of them appears. This aborts the load process and puts the system into the Boot Monitor (> prompt).

Memory Test

Run the memory test as follows:

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1. At the Boot Monitor prompt (>), type **ex** and press Return.
2. Type the number associated with the Test Available Memory test and press Return (**Return**).

```
Enter test type? # (for Test Available Memory test)
<CR>
```

3. Press Return to run the test once.

```
F Loop forever
E Loop until error
Q Main menu
<cr> Test once
Esc Abort testing
Enter choice? <CR>
```

The diagnostic code displays either

```
Pass -00000001
```

to signify that the memory is good, or a message similar to the following if an error was detected:

```
Expected bad component is JXX. (Indicates socket number
of bad SIMM.)
```

If there are no errors, go to Step 6.

If errors are reported, continue with Step 4.

4. Remove the bad SIMM from the socket indicated and rerun the memory test to confirm that the remaining memory is good.
5. Add a new SIMM, and rerun the memory test to confirm that the newly installed SIMM is good.
6. Exit from the test and return to the Boot Monitor by typing:
Enter test type? **Q** **<CR>**
7. Reset the terminal by typing:
> rs <CR>

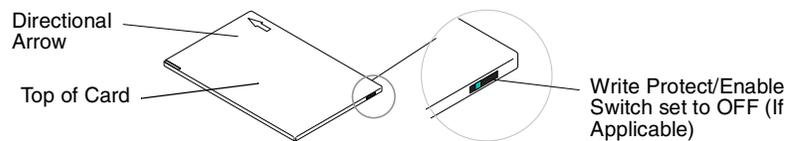
For information about the Boot Monitor commands, refer to *NCDware software documentation*.

Installing PCMCIA Cards

The PCMCIA cards are 68-pin credit-card size devices that fit into the base PCMCIA slot. These cards can be ordered directly from NCD or from other vendors. Most PCMCIA cards have an arrow on the top face side showing the direction of insertion into the PCMCIA slot. The cards are keyed and cannot be installed upside down.

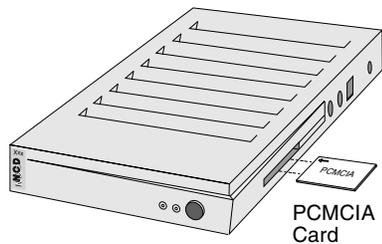
Caution

Do not insert or remove the PCMCIA card while the unit is running; always turn off the terminal first.



The rear edge of the PCMCIA card may have a write protect/enable switch. If your card has this switch, it should be in the OFF position. If write protect is enabled, data cannot be written to the card and an error message appears if you try to do so.

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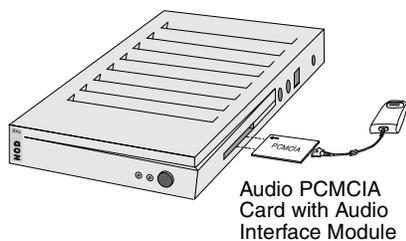


To install a PCMCIA card:

1. Shut off the terminal.
2. If your PCMCIA card has a write protect switch, set it to OFF.
3. With the arrow side facing up, slide the card into the PCMCIA slot until you feel the card make contact with the pins in the socket.
4. Firmly push the card into the socket to seat it.

Caution

Do not force the card into the socket; the card should go straight in.

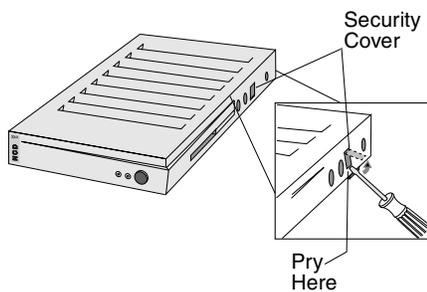


5. If the PCMCIA is an audio card, attach the Audio Interface Module to the connector on the card.

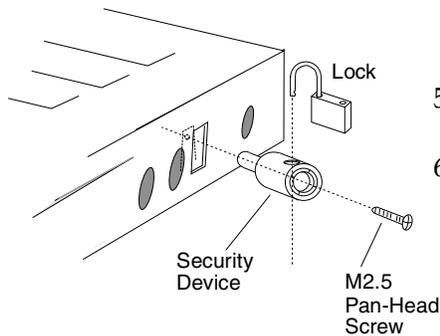
Installing the Security Device

Both models have a rectangular security cover located next to the keyboard connector. This is where the security device is located once the cover is removed. The security device can be used with or without the mounting bracket.

If you are using the optional mounting bracket and are going to use the security device with it, do step one of this procedure and then go to the next part in this section "Installing the Mounting Bracket." You do not have to return to this section.



1. To remove the security cover, insert a medium sized flat blade screwdriver into the bottom of the slot.
2. Gently pry out the security cover.
3. Insert the security device into the slot so that the center of the device lines up with the screw hole in the chassis.
4. Insert an M2.5 machine screw (supplied) through the center of the security device and into the hole.
5. Tighten down the machine bolt.
6. To secure the unit, insert a lock or cable through the outer hole in the security device.



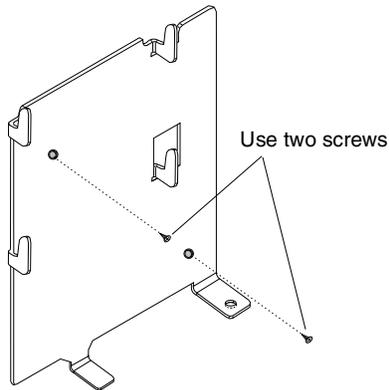
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Installing the Mounting Bracket

There are various places the mounting bracket may be attached. Examples include attaching the bracket on a wall or on your desk, as shown in the illustration. In determining where to attach the bracket, keep the following in mind:

- Are the cables you have attached to the base long enough to reach from the bracket to the keyboard, mouse, and monitor?
- Is the fixture where you're attaching the bracket secure enough to hold the bracket and base?
- Is the area where you're placing this bracket and base out of the way of traffic, so that the unit will not be bumped?
- Is there enough clearance around the unit for cables and air circulation?

5

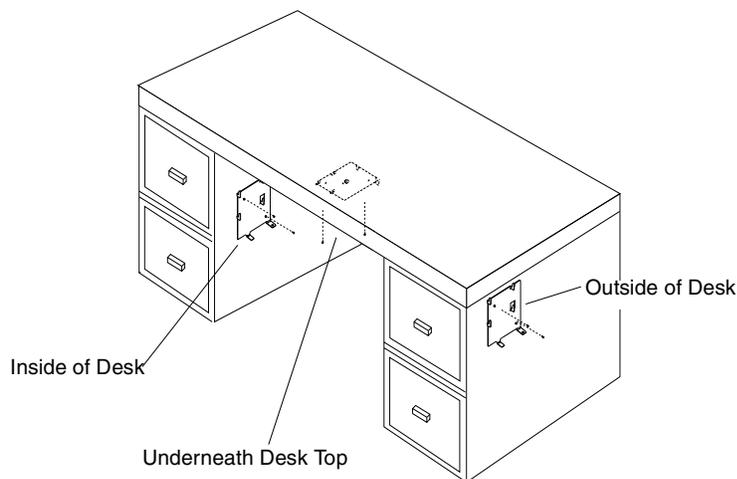


To mount the bracket:

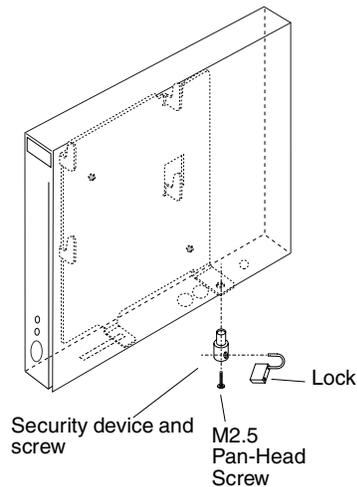
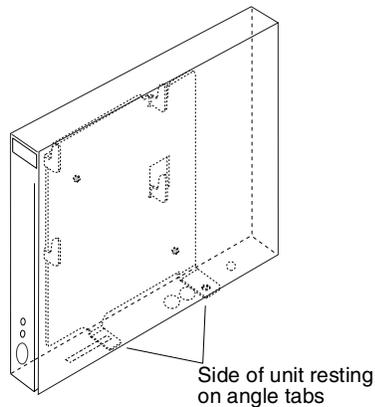
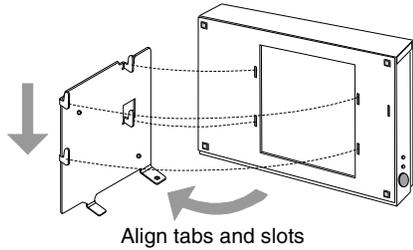
1. Select the location to attach the bracket.
2. Use the two flathead screws (supplied), and secure the bracket to the fixture.

Make sure the screw heads are flush with the bracket before attaching the base.

Possible areas for mounting the bracket.



Securing the Base to the Mounting Bracket



To attach Explora to the bracket:

1. Align the tabs on the bracket with the slots on the bottom of the unit.
2. Insert the tabs into the slots and at the same time, gently push down on the unit.

The side of the base should rest on the two angle tabs protruding from the bracket, shown in the diagram.

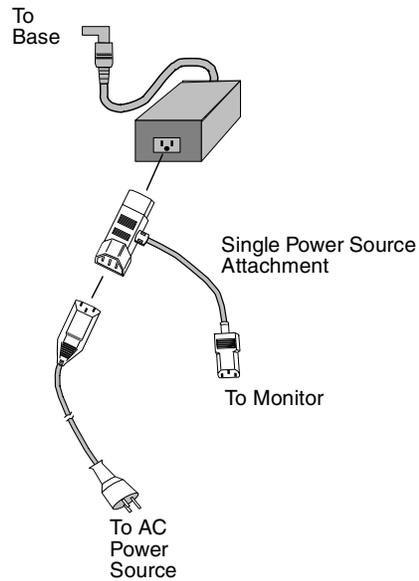
Using the Security Device

To use the security device with the mounting bracket, do the following:

1. Before attaching the base to the bracket, make sure you remove the security cover from the side of the terminal. If you have not done this, go back to step one in "Installing the Security Device" and remove the security cover.
2. Attach the base to the mounting bracket, using the steps above. Then return here to step 3.
3. Push the small part of the security device through the hole in the angle tab on bracket and through the security cover slot, so that the center hole of the device aligns with the threads on the inside of the chassis.
4. Insert the pan-head screw (M2.5, supplied) through the center of the security device, and screw it all the way in, until it is secure.
5. To lock the unit to the bracket, insert a lock or security cable through the hole in the large area of the security device.

Single Power Source Attachment

To install the Single Power Source Attachment, follow these steps:

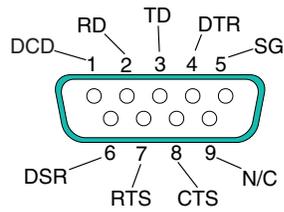


1. Insert one end of the Single Power Source Attachment into the power supply block.
2. Insert the power cable into the Single Power Source Attachment connector.
3. Insert the Single Power Source Attachment extension connector into the monitor.
4. Attach the power supply connector to the base unit.
5. Connect the power cable to the power source.

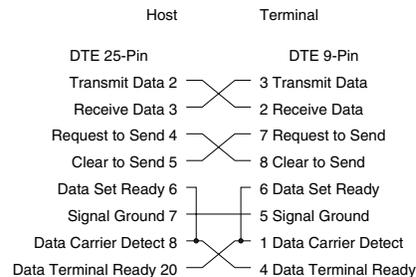
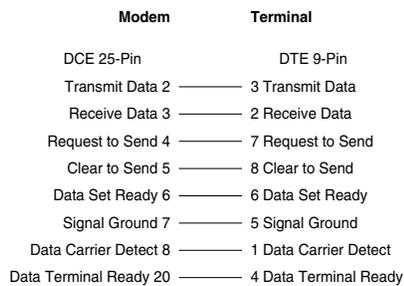
Pinout Diagrams

This section contains pinout diagrams for the base connectors.

Serial Connector (RS 232 C Serial Connector)

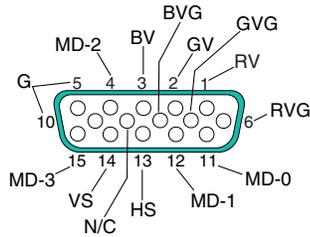


Pin	Signal	Signal Direction
1	Data Carrier Detect	In
2	Receive Data	In
3	Transmit Data	Out
4	Data Terminal Ready	Out
5	Signal Ground	--
6	Data Set Ready	In
7	Request To Send	Out
8	Clear To Send	In
9	Not Connected	
Shell	Protective GND	



6

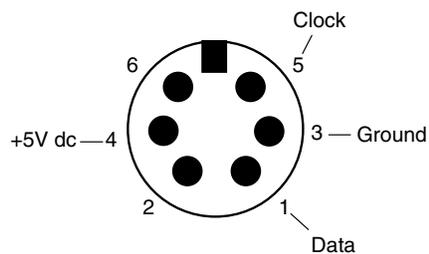
Monitor Connector



Pin	Signal	Signal Direction
1	Red Video	Out
2	Green Video	Out
3	Blue Video	Out
4	Monitor Detect 2	In
5	Ground	--
6	Red Video Ground	--
7	Green Video Ground	--
8	Blue Video Ground	--
9	No Connection	--
10	Ground	--
11	Monitor Detect 0	In
12	Monitor Detect 1	In
13	Horizontal Sync	Out
14	Vertical Sync	Out
15	Monitor Detect 3	In
Shell	Chassis Ground	--

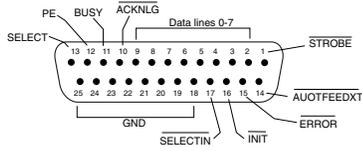
6

Keyboard and Mouse Connectors



Pin	Signal
1	Data
2	Reserved
3	Ground
4	+5V dc
5	Clock
6	Reserved

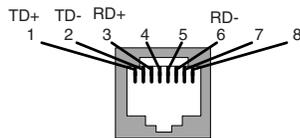
Parallel Connector



Pin	Signal	Signal Direction
1	STROBE	In
2	Data 0	In
3	Data 1	In
4	Data 2	In
5	Data 3	In
6	Data 4	In
7	Data 5	In
8	Data 6	In
9	Data 7	In
10	ACKNLG	Out
11	BUSY	Out
12	PE	Out
13	SELECT	Out
14	AUTOFEEDXT	In
15	ERROR	Out
16	INIT	In
17	SELECTIN	In
18 - 25	GND	N/A

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RJ-45 Connector (Twisted-pair Ethernet)



Pin	Name	Function
1	TPOP	Transmit+
2	TPON	Transmit-
3	TPIP	Receive+
4/5	Not Used	--
6	TPIN	Receive-
7/8	Not Used	--

Specifications

The following table contains Explora family specifications.

Table 3: Explora Family Specifications

Category	Topic	Specification
Hardware architecture	Microprocessor	
	Explora	PPC 403GB
	Explorapro	PPC 403GA
	Coprocessor	S3 968 (both models)
	DRAM	
	Explora	4 MB
	Explorapro	8 MB
	PROM	256KB (both models)
	Memory upgrades	32-bit, 60ns, fast-page mode SIMMs
	Explora	1 SIMM slot expandibility
	Explorapro	2 SIMM slots expandibility
NVRAM	512 Bytes (both models)	
Display memory		
Explora	1 MB	
Explorapro	2 MB	
Display monitor	Resolution	
	Explora	640x480, 800x600, 1024x768
	Explorapro	640x480, 800x600, 1024x768, 1152x900, 1280x1024
	Refresh rate	Up to 76 Hz
Power Transformer	AC voltage and AC frequency	
	North America	90-132 VAC, 60 Hz (+/- 3 Hz)
	European/Australian	180-265 VAC, 50 Hz (+/- 3 Hz)
	Japanese	85-110 VAC, 47 - 63 Hz
Power Consumption		19 Watts (maximum)
Environmental operating range	Temperature	10× C (50× F) to 40× C (104× F)
	Humidity	10% to 90% non-condensing
	Altitude	Up to 3,050 meters (10,000 feet)

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Table 3: Explora Family Specifications (Continued)

Category	Topic	Specification
Controls and indicators	Base unit	Power switch, Power LED, Network Activity, and Twisted-Pair Link Indicator.
	Keyboard	N-97/Kana: Three configurable LEDs (Unlabeled, Caps Lock, and Network Activity). N-101/N-102: Three configurable LEDs (Num Lock, Caps Lock and Scroll Lock) N-108LK: Four configurable LEDs (Hold Screen, Lock, Compose, and Network Activity) N-123 Sun Type 5 compatible: Four configurable LEDs (Caps Lock, Compose, Scroll Lock, and Number Lock) 3270 Lexmark: Three configurable LEDs (Network Activity, Caps Lock, and Number Lock)
Input Devices	Keyboards	97-key UNIX style keyboard (N-97), 101-key PS/2 style keyboard (N101PS), 102-key international version (N-102), 108-key LK401-compatible keyboard (N-108LK), 97-key Kana keyboard (Japanese characters) (N-97KAN) N-123 Sun Type 5 compatible keyboard (N-123), 3270 Lexmark
	Mouse	Three-button, PS/2
Communications	Thin (BNC)	Built-in 10Base2 Thin Ethernet transceiver
	Twisted-Pair	Built-in 10BaseT Twisted-pair Ethernet transceiver
	Serial port	RS-232 C up to 115.2 K baud
	Parallel port	Connector: 25-pin Data: 8-bit parallel Synchronization: STROBE pulse Handshaking: ACKNLG or BUSY signal Logic level: TTL level
	PCMCIA	Standard PCMCIA PC card Standard Release 2.01, 68-pin connector
Physical Dimensions	Height	1.625 inches (4.13 cm)
	Width	7.25 inches (18.42 cm)
	Depth	10.00 inches (25.40 cm)
	Weight	1.51 pounds (0.686 kg)

Troubleshooting

Problems Caused by Faulty Hardware

NCD terminals have four major components: base, monitor, keyboard, and mouse. If found to be faulty, the base and/or monitor must be returned for repair. The mouse and/or keyboard are replaceable.

Isolating Faulty Components

One of the best ways of tracking down hardware problems is to swap components among compatible terminals. Swapping components lets you determine which component is faulty.

For example, if a keyboard appears to be faulty, turn off the terminal, disconnect the keyboard, and connect a keyboard from another NCD terminal. If the second keyboard works, you know that the problem is with the first keyboard and not with another component, such as the keyboard controller in the base.

Mouse Troubleshooting

Most mouse problems are caused by a dirty mouseball or a loose connection between the mouse cable and the base. If you have problems using your mouse:

1. Check the mouse cable connector. Make sure it is firmly connected to the base's mouse connector.
2. Turn the mouse upside down and remove the ball. Clean the ball and its socket, and reassemble the mouse.
3. Clean your mouse pad or the area of the desk where your mouse sits.

Monitor Troubleshooting

Generally, if the monitor is out of focus, too bright, or too dark, adjust the monitor's brightness and contrast knobs. Each monitor model has its own set of controls. Check the monitor operating booklet for more information about your monitor.

Base Troubleshooting

A flashing power indicator indicates there is a hardware problem in the base.

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If you find you must return a base for repair, send it in the same configuration as when it failed.

In Case of Trouble

If you encounter difficulties, you can send e-mail or a FAX to NCD Technical Support or contact them by phone.

For information on services available from NCD Technical Support, contact your NCD representative or send mail to info@ncd.com.

Phoning Technical Support

You can phone (415) 691-7445 and ask for Technical Support. Be prepared to provide at least the following information when you call:

- Model name of the terminal
- Full description of the problem
- Whether you have tried swapping components to isolate the problem
- How long has the terminal been working
- Whether the problem is constant or intermittent
- Amount of memory installed in the terminal
- Part number and serial number
- Release of NCDware you are running
- Host system

Sending E-Mail or FAXES to Technical Support

Note NCD Technical Support uses an automated system for e-mail. To make sure that your e-mail is answered quickly, please follow the instructions given below.

Send e-mail to the Internet address **support@ncd.com**, or send a FAX to (415) 961-7774. For both e-mail and FAX messages, use the following format. It is not necessary to fill out the form completely, but you must use this format for all e-mail requests. If you send e-mail in any other format, the automated support system returns your message along with a blank form to be completed and resent.

You can also submit a request through the NCD Web Services. Go to <http://www.ncd.com/NCD/techsupport/index.html>, to reach the NCD X Terminal Software Support home page.

You may want to type the entire form and keep it on hand as a template to be filled if you need to contact Technical Support again.

Fill in as much of this portion as you can

Problem type= enhancement, question, bug, crash...
Problem area= hardware, server, document, network,
application, configuration, ...
Type of host = *for example*, Sun
Host OS release= *for example*, 4.1.3
Window manager= *for example*, ncdwm, olwm, local
mwm, host-based mwm

Boot method= MOP, TFTP, NFS, or PCMCIA

NCD Customer ID= assigned by NCD the first time you send e-mail

User name=

Company/organization=

Title=

Phone number=

FAX number=

E-mail address=

Shipping address=

The first time you send e-mail to Technical Support, fill out this customer information section completely. For subsequent help requests, you can leave this information out, supplying only the NCD Customer ID.

Cut and paste the information displayed in the Console's Show Version window, or provide the following information about the X terminal:

Model of terminal= *for example*, HMX
Memory installed= *for example*, 2/4 = 6 total
NCDware version= *for example*, 4.0.100
Boot Monitor version= *for example*, 2.7.0

Provide a detailed description of the problem.

Returning Components

If you have to return a component, follow these steps.

1. Gather the information listed in “Phoning Technical Support.”
2. Contact NCD Service Operations to determine the faulty component and to obtain a Return Authorization Number (RMA).
 - e-mail: support@ncd.com
 - phone:(415) 691-7445
3. Once you have obtained an RMA number, package the component for return.

If possible, use the original cartons and packing materials. If the original cartons and materials are not available:

- Wrap each component in bubble wrap.
- Place each component in sturdy carton that leaves 4 inches of bubble wrap and packing material around the component.

If you would rather not pack the component yourself, NCD recommends that you take it to a commercial packing and shipping company and ask that the content be wrapped according to these instructions.

4. Mark each return package with the assigned RMA number and address each package as shown below to avoid problems or delays:

Customer Service
Network Computing Devices
350 North Bernardo Avenue
Mountain View, CA 94043
RMA

Note Equipment returned without an RMA number is subject to delays or may be returned to the sender.

Ethernet Address of Replacement Bases

If a base is replaced, its Ethernet address is different on the replacement base. You must change system files that contain Ethernet addresses.

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Comments on the Booklet

You can send comments, suggestions, or questions about this booklet to the NCD Technical Publications Department by Internet e-mail. Write to techpubs@ncd.com.

Guidelines for Productive and Healthy Use of Your X Terminal

You may have read or heard of articles which have linked prolonged viewing of computer video display terminals with eye fatigue, and prolonged use of computer keyboards and mouse devices with repetitive stress injuries such as carpal tunnel syndrome. One common example is the syndrome known as "tennis elbow." Although a conclusive direct causal relationship between computer use and these adverse health effects has yet to be scientifically proven, NCD recommends that you read and follow these guidelines in setting up and using your new NCD X terminal.

- Set up your X terminal in a well lit, glare and shadow-free environment.
- Avoid using your X terminal in a position you find awkward or unnatural.
- Select a chair that provides good lower back support. Adjust your chair so that your feet rest flat on the floor with your thighs in a horizontal position.
- Place your keyboard on a surface so that your wrists are not tilted, or only slightly tilted while using the keyboard. Many people find a comfortable keyboard height is at the same level as their elbows.
- If the height of your work surface cannot be adjusted, position the chair at a comfortable height and use a footrest to place your feet on a level surface.
- Place your mouse on a surface which is at the same height as your keyboard. Many people find using the mouse and keyboard within 16" inches of the body is comfortable.
- Avoid resting your arm on your work surface and merely bending your wrist when using your mouse. Consider using a wristrest to provide a padded surface for your wrists when working with your mouse.
- Place your display monitor at a comfortable viewing distance. Many people favor a distance of 16" to 28" from their eyes. Position the screen so that you are not looking up or down at the screen.
- Take breaks to rest your eyes, stretch your muscles, and move around.
- Vary your work patterns so that you alternate working at your X terminal with other tasks that use different muscle groups and allow you to focus your eyes at different distances.
- See your physician if you experience persistent muscle ache, joint pain, eye fatigue or other discomfort when using your X terminal.

These are guidelines. What is comfortable for some may not be comfortable for you. You are the only one who can decide if these guidelines are appropriated for your needs.

What about electromagnetic emissions from your monitor?

Many objects we encounter in our everyday lives produce very low frequency (VLF) and extremely low frequency (ELF) electromagnetic emissions. These objects include such common appliances as portable cellular telephones, televisions, toasters, electric blankets, and video display terminals (VDT) such as the monitor which is part of your X terminal. VDTs, have been the focus of a growing controversy over the potential health effect of VLF and ELF emissions.

NCD is monitoring this issue and shares the public's concern over the potential health consequences of exposure to VLF and ELF emissions from VDTs. To date, the research and testing on this subject is inconclusive. Moreover, the link, if any between VDT emissions and adverse health effects is unproven and the subject of much debate. Stress, postural strain and poor working conditions are frequently cited in addition to, and instead of, VDT emissions as posing potential health hazards to frequent users of VDTs.

The prevailing professional opinion to date is that VDTs are safe. NCD products comply with the applicable regulations and standards for electromagnetic radiation set forth by the U.S. Code of Federal Regulations, Underwriters Laboratories, Inc., the Canadian Standards Association and the German VDE Standard. When and if new or additional standards are adopted, NCD will take appropriate steps to comply with them.

Even though the preponderance of professional opinion is that VDTs are safe, some of our customers have asked us for information on how to reduce their exposure to VLF and ELF emissions. Although NCD does not endorse the following as having health benefits, the easiest and perhaps most economical and effective measures are to turn off your display when not in use, to position your display at arm's length, and to avoid working in areas where you are positioned close to the rear of a VDT where the emissions are strongest. Also, shields are available from third party vendors that reduce glare and electric emissions.

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Revision History

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Part Number 9300385 Rev A, November 1995 -- Changed name to Explora