EPSON® *ActionNote*™ 4SLC2-50

User's Guide

IMPORTANT NOTICE
DISCLAIMER OF WARRANTY

TRADEMARKS

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ActionNote is a trademark and Epson Connection is a service mark of Epson America, Inc.

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EPSON®
ActionNote™ 4SLC2-50

User's Guide

MODEM FCC INFORMATION

FCC Part 68

This equipment complies with FCC rules, Part 68. On the underside of your computer is a label that contains, among other things, the FCC Registration Number and Ringer Equivalence Number (REN) for this equipment. You must, upon request, provide this information to your telephone company.

An FCC compliant telephone cord and modular plug is provided with this equipment. This equipment is designed to be connected to the telephone network or premises wiring using a compatible modular jack which is Part 68 compliant. See the installation instructions for details.

The Ringer Equivalence Number (REN) is useful to determine the quantity of devices you may connect to your telephone line and still have all of those devices ring when your telephone number is called. In most, but not all areas, the sum of the REN's of all devices connected to one line should not exceed five (5.0). To be certain of the number of devices you may connect to your line, as determined by the REN, you should contact your local telephone company to determine the maximum REN for your area.

Should this equipment cause harm to the telephone network, the telephone company shall, where practical, notify the customer that temporary discontinuance of service may be required; however, where prior written notice is not practical, the telephone company may discontinue service forthwith, if such action is reasonable in the circumstances. You will be informed of your right to file a complaint with the FCC.

The telephone company may make changes in its communications facilities, equipment, operation procedures, where such action is reasonable, required in the operation of its business and is not inconsistent with the rules and regulations of the Federal Communications Commission. If they do, you will be notified in advance to give you an opportunity to maintain uninterrupted telephone service.

Do not attempt to repair or modify this equipment. If defective, return it to the person from whom it was purchased, who will in turn arrange to return it or to have it repaired by the manufacturer or his authorized agent. The telephone company may ask that you disconnect this equipment from the network until the problem has been corrected or until you are sure that the equipment is not malfunctioning. If equipment is determined to be malfunctioning, its use shall be discontinued until the problem has been corrected.

This equipment should not be used on coin service provided by the telephone company. Connection to party line is subject to state tariffs.

WARNING

The connection of a telephone company line to this equipment, other than the one supplied with the modem, will invalidate the FCC Certification of this device. It is the responsibility of the user to connect and use only the ferrite-loaded telephone company line supplied with this modem.

Changes or modifications not expressly approved by the manufacturer could void the user's autority to operate this equipment.

Important Safety Instructions

1. Read all of these instructions and save them for later reference.

2. Follow all warnings and instructions marked on the computer.

3. Unplug the computer from the wall outlet before cleaning. Use a damp cloth for cleaning; do not use liquid or aerosol cleaners.

4. Do not spill liquid of any kind on the computer.

5. Do not place the computer on an unstable cart, stand, or table.

6. Slots and openings in the cabinet and the back or bottom are provided for ventilation; do not block or cover these openings. Do not place the computer near or over a radiator or heat register.

7. Operate the computer using the type of power source indicated on its label.

8. If you plan to operate the computer in Germany, observe the following safety precaution:

   To provide adequate short-circuit protection and over-current protection for this computer, the building installation must be protected by a 16 Amp circuit breaker.

   Beim Anschluß des Computers an die Netzversorgung muß sichergestellt werden, daß die Gebäudeinstallation mit einem 16 A Überstromschutzschalter abgesichert ist.

9. Connect all equipment to properly grounded (earthed) power outlets. If you are unable to insert the plug into an outlet, contact your electrician to replace your outlet. Avoid using outlets on the same circuit as photocopiers or air control systems that regularly switch on and off.

10. Do not allow the computer's power cord to become damaged or frayed.

11. If you use an extension cord with the computer, make sure the total of the ampere ratings of the devices plugged into the extension cord does not exceed the ampere rating for the extension cord. Also, make sure the total of all products plugged into the wall outlet does not exceed 15 amperes.

12. Do not insert objects of any kind into this product through the cabinet slots.

13. Except as specifically explained in this User's Guide, do not attempt to service the computer yourself. Refer all servicing to qualified service personnel.

14. Unplug the computer from the wall outlet and refer servicing to qualified service personnel under the following conditions:

    A. When the power cord or plug is damaged.

    B. If liquid has entered the computer.

    C. If the computer does not operate normally when the operating instructions are followed. Adjust only those controls that are covered by the operating instructions. Improper adjustment of other controls may result in damage and often requires extensive work by a qualified technician to restore the computer to normal operation.

    D. If the computer has been dropped or the cabinet has been damaged.

    E. If the computer exhibits a distinct change in performance.

Instructions Importances de Sécurité

1. Lire complètement les instructions qui suivant et les conserver pour réfénces futures.

2. Bien suivre tous les avertissements et les instructions indiqués sur l'ordinateur.

3. Débrancher l'ordinateur de toute sortie murale avant le nettoyage. Utiliser un chiffon humide; ne jamais utiliser un nettoyeur liquide ou une bonbonne aérosol.

4. Ne jamais renverser un liquide d'aucune sorte sur l'ordinateur.

5. Ne pas placer l'ordinateur sur un chariot, un support, ou une table instable.

6. Les évents dans le meubles, à l'arrière et en dessous sent conçus pour l'aération; on ne doit jamais les bloquer. Ne pas placer l'ordinateur près d'une source de chaleur directe.

7. Le fonctionnement de l'ordinateur doit s'effectuer conformément au type de source d'alimentation indiquée sur l'étiquette.

8. Lorsqu'on desire utiliser l'ordinateur en Allemagne, on doit observer les normes sécuritaires qui suivent:

    Afin d'assurer une protection adéquate à l'ordinateur contre les court-circuits et le survoltage, l'installation de l'édifice doit comprendre un disjoncteur de 16 amp.

9. On doit brancher tout l'équipement dans une sortie reliée à la masse. Lorsqu'il est impossible d'insérer la fiche dans la prise, on doit retenir les services d'un électrician ou remplacer la prise. Ne jamais utiliser une prise sur le même circuit qu'un appareil à photocopied ou un système de contrôle d'aéation avec commutation marche-arrêt.

10. S'assurer que le cordon d'alimentation de l'ordinateur n'est pas effrité.

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11. Dans le cas où on utilise un cordon de rallonge avec l'ordinateur, on doit s'assurer que la valeur totale d'ampèsres branchés dans le cordon n'excède en aucun temps les amperes du cordon de rallonge. La quantité totale des appareils branchés dans la prise murale ne doit jamais excéder 15 ampères.

12. Ne jamais insérer un objet de quelque sorte que ce soit dans les cavités de cet appareil.

13. Sauf tel que spécifié dans la notice d'utilisation, on ne doit jamais tenter d'effectuer une réparation de l'ordinateur. On doit référer le service de cet appareil à un technician qualifié.

14. Débrancher l'ordinateur de la prise murale et confier le service au personnel de service qualifié selon les conditions qui suivent:

   A. Lorsque le cordon d'alimentation ou la prise sent endommagés.

   B. Lorsqu'un liquide s'est infiltré dans l'ordinateur.

   C. Lorsque l'ordinateur refuse de fonctionner normalement même en suivant les instructions. N'ajuster que les commandes qui sent énumérées dans les instructions de fonctionnement. Tout ajustement inadéquat de tout autre contrôle peut provoquer un dommage et souvent nécessiter des réparations é1aborées par un technician qualifié afin de remettre l'appareil en service.

   D. Lorsqu'on a échappé l'ordinateur ou que l'on a endommagé le boîtier.

   E. Lorsque l'ordinateur démontre un changement noté au niveau de sa performance.

Contents

CHAPTER 3 POWERING THE COMPUTER

CHAPTER 4 CONNECTING OPTIONAL DEVICES

APPENDIX B FAX/MODEM

APPENDIX C SPECIFICATIONS

GLOSSARY

INDEX

Introduction

With your purchase of the Epson® ActionNote™ 4SLC2-50
computer, you have chosen state-of-the-art notebook computing.
The 486SLC2-50 microprocessor chip, designed for portable
computers, provides high-speed performance in a compact,
lightweight, notebook-size form.

Standard Configuration

The ActionNote is a versatile computer supporting a wide range of
applications and hardware. Its standard features include the
following:

❏ 4MB or 8MB of RAM (random access memory), expandable to
a maximum of 8MB

❏ 640 x 480 VGA (video graphics array), backlit, monochrome
LCD (liquid crystal display) screen, which emulates VGA
color with 32 shades of gray

❏ Internal hard disk drive

❏ Internal 3½-inch, 1.44MB diskette drive

❏ Parallel port for a printer or other parallel device

❏ Two serial ports for serial devices

❏ RJ-11 standard phone jack for an internal modem

❏ Video port for an external color or monochrome VGA monitor

❏ Port for a PS/2®-compatible pointing device

❏ Mouse/keyboard adapter for simultaneously attaching an
external PS/2-type keyboard and a pointing device

❏ Rechargeable battery pack

❏ AC adapter for powering the computer and recharging the battery pack

❏ Socket for an optional numeric coprocessor

❏ Two processing speeds: high and low (8 MHz)

❏ Suspend mode to save battery power

❏ Carrying case with room for the computer, AC adapter, power cable, diskettes, and manuals.

❏ Trackball or other pointing device with drivers and utilities

❏ MS-DOS® operating system, including diskettes and manuals

❏ Microsoft® Windows,™ including diskettes and manuals.

Depending on the configuration you purchased, your computer may also include the following:

❏ Internal 9600/2400 fax/modem

❏ Internal 14.4/14.4 fax/modem

❏ BitCom® modem software and WinFax™ LITE fax transmission software, including diskettes and manuals.

Optional Equipment

You can easily upgrade your computer by installing additional memory and adding optional devices, including:

❏ Expansion memory module (6MB)

❏ External PS/2-compatible keyboard

❏ Extra battery packs

❏ Adapter for an automobile cigarette lighter

❏ Fax/modem (installed by dealer only).

Where to Get Help

If you purchased your computer in the United States, Epson America provides local customer support and service through a nationwide network of Authorized Epson Service Centers. Epson also provides support services through the Epson Connection at: 1-800-922-8911.

Call the Epson Connection for the following:

❏ Technical assistance with the installation, configuration, and operation of Epson products

❏ Sales of accessories, manuals, or parts for your Epson products

❏ Assistance in On-Site Warranty Service for your Epson products

❏ Assistance in locating your nearest Authorized Epson Reseller or Service Center

❏ Customer relations

❏ Epson technical information library fax service-also available directly by calling (310) 782-4214

❏ Product literature with technical specifications on current and new products.

When you call for technical assistance, you need to be able to identify your system and its configuration, and provide any error messages to the support staff. See Appendix A for more information.

If you purchased your computer in the United States, Epson also provides On-Site Warranty Service. Your ActionNote package should contain a packet describing the program. If a packet is not included, call the Epson Connection for information. For your convenience there is a sticker located on the bottom of your computer with the number to call for product support and On-Site Warranty Service.

If you purchased your computer outside the United States, please contact your Epson dealer or the marketing location nearest you for customer support and service. International marketing locations are listed on the inside back cover of this manual.

If you need help with DOS, Windows, or any software application program you are using, see the documentation that came with the program for technical support information.

How to Use This Manual

This manual explains how to setup and operate your computer and install options.

You do not need to read everything in this book to use your computer; see the following chapter summaries to find the sections you need:

Chapter 1 provides steps for setting up your computer.

Chapter *2 covers* basic information about using the computer.

Chapter 3 explains how to power your computer using the AC adapter and the battery. It also describes ways to conserve battery power.

Chapter 4 describes how to connect optional devices.

Chapter 5 describes how to run the Setup program; this is necessary if you want to set a password or you change the configuration of your computer.

Chapter 6 describes the VGA utilities provided with your system.

Appendix A provides troubleshooting tips.

Appendix B provides basic information about the internal modem and summarizes its commands.

Appendix C contains the specifications for your ActionNote computer.

At the end of the manual, you'll find a Glossary and an **Index.**

Conventions Used in This Manual

This manual uses the following type conventions to represent commands:

Example	Meaning
Enter	Keys you press on the keyboard
Ctrl C Fn F1	Keys you press at the same time; hold down the key marked Ctrl and then press the letter C, or hold down the key marked Fn and then press the F1 key
C: \DOS	Text as it appears on the screen
DISKCOPY A: B:	Text that you type exactly as shown
path *fileneme*	Words printed in lowercase italics represent optional parameter names; here you would type the actual path and filename, such as \WORK\CONTACT
COM 1	Names of hardware elements

Chapter 1
Setting Up the Computer

This chapter describes how to complete the basic setup of your ActionNote computer. It covers:

❏ Identifying the system parts

❏ Connecting the AC adapter

❏ Opening the screen

❏ Connecting the trackball

❏ Turning on the computer.

Instructions for installing optional equipment (such as a memory module or a numeric coprocessor) or connecting external equipment (such as a monitor or printer) are provided in Chapter 4.

Caution
When travelling by airplane, be sure to take your computer into the passenger compartment as carry-on luggage to prevent it from being stored in an unpressurized storage area.

Identifying the System Parts

Before getting started, refer to the illustrations below to identify the different parts of your computer.

Front View

The main components on the front and right side of the ActionNote are shown below.
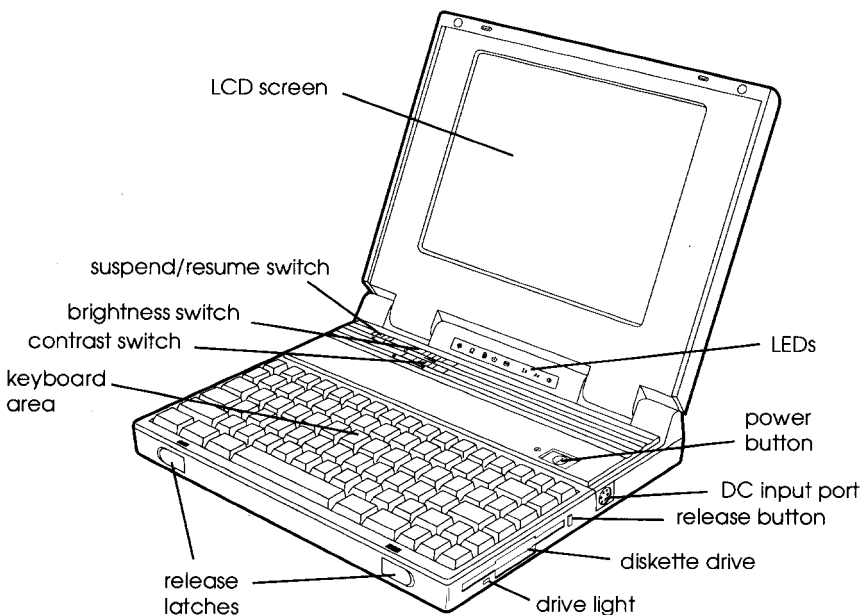
LCD screen

Your ActionNote has a backlit, monochrome LCD that supports
VGA resolutions up to 640 x 480 dots in 32 shades of gray.

Suspend/resume switch

Slide this switch to the right to suspend power to the computer
when it is on. This places the computer in a very low power
consumption state. Slide the switch to the left or press shift to
return the computer to its previous state.

Brightness switch

This switch controls the brightness of the LCD screen. Slide
the switch to the right to lighten the screen and to the left to
darken it.

Contrast switch

This switch controls the contrast on the LCD screen. Slide
the switch to the right to increase contrast and to the left to
decrease it.

Keyboard area

This is where you type commands and enter data. For a full
description, see Chapter 2.

Release latches

Slide these latches outward to release the top cover and open the
LCD screen.

LEDs

The LEDs (light emitting diodes) on your computer provide information about its operation,

Power—Indicates the computer is on; either the AC adapter, battery pack, or automobile adapter is supplying power to the computer.

Low battery—When flashing, indicates the battery capacity is less than 20%.

Charging—Indicates the battery is fully charged; blinks when the AC adapter is connected and charging the battery.

Suspend mode—Indicates the computer is in Suspend mode.

Hard disk drive-Indicates the computer is accessing the hard disk drive.

Num Lock—Indicates that Num Lock is set on the keyboard. This activates the embedded numeric keypad on the keyboard.

Caps Lock—Indicates that Caps Lock is set on the keyboard.

Scroll Lock—Indicates that Scroll Lock is set on the keyboard.

Power button

This button turns the computer on and off.

DC input port

Connect the AC adapter cable here. See page 1-8 for instructions.

Release button

Press this button to eject a diskette from the drive.

Diskette drive

Your computer includes a 3½-inch, 1.44MB diskette drive. For
instructions on using diskettes, see Chapter 2.

Drive light

This light is on when the computer is accessing the diskette drive.

Rear Panel and Left Side

The components on the rear panel and left side of the computer
are shown below.
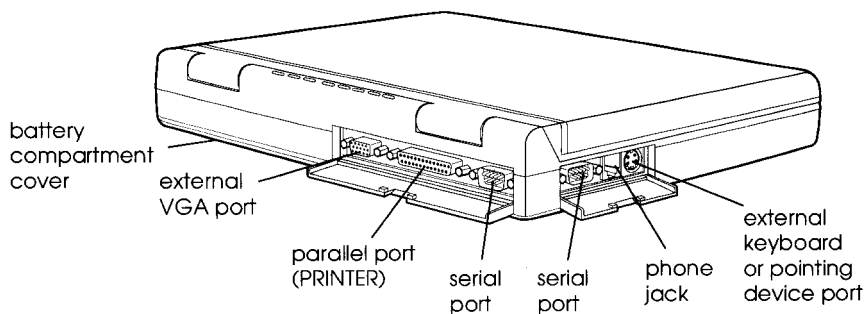
Battery compartment cover

Turn the computer upside down and open this cover to access the battery pack. The rechargeable NiCad battery pack powers your computer when the AC adapter is not connected. For a full description, see Chapter 3.

External VGA port (VIDEO)

You can connect a VGA monochrome or color monitor to this port. The ActionNote can display information on both the LCD screen and an external monitor at the same time.

Parallel port (PRINTER)

You can connect a parallel device, such as a printer, to this port. See Chapter 4 for instructions.

Serial port (COM 1)

This port supports a serial (RS-232C) device. See Chapter 4 for more information.

Serial port (COM 2)

This port supports a serial (RS-232C) device. See Chapter 4 for more information. Note that when the internal fax/modem is installed, this port is disabled.

Phone jack (LINE)

Use this standard RJ-11 jack to connect a phone line when the internal fax/modem is installed.

External keyboard port (EXT KB)

Use this port to connect any PS/2-compatible pointing device. This port also supports a mouse/keyboard adapter for attaching both an external PS/2-type keyboard and a pointing device at the same time. See Chapter 4 for instructions on installing optional devices.

Connecting the AC Adapter

The AC adapter is designed to be used in most countries, as it can operate in the ranges 100 to 240 VAC, 50 to 60 Hz (auto-sensing).

Caution
Use only the AC adapter (model number AP-3S25) supplied with the computer.

If you are using the adapter in a country other than the one where you purchased your ActionNote, make sure you have the correct power cable for the electrical socket. See the power cable specifications in Appendix C for details.

You may need to connect the AC adapter to charge the battery before you use it for the first time. (See Chapter 3 for complete instructions on powering the computer with the AC adapter and/or the battery.)

Follow these steps to connect the adapter to the computer:

1. Connect the AC adapter plug to the DC input port on the right side of the computer.
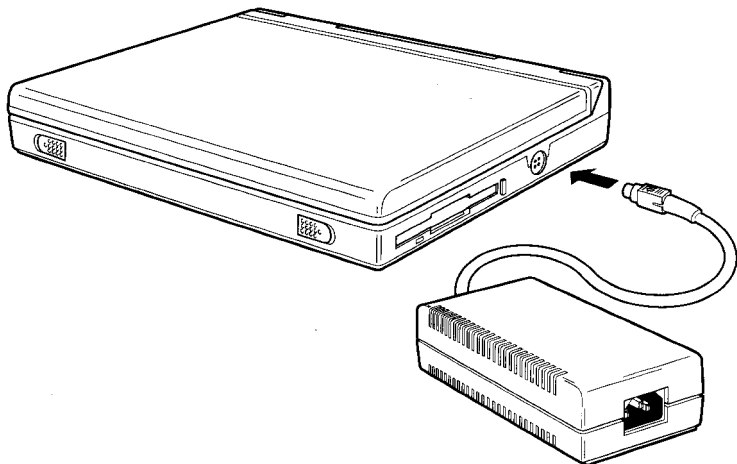
2. Connect the power cable to the AC adapter.
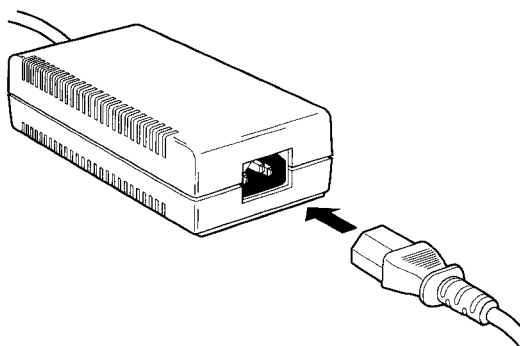
3. Connect the other end of the power cable to a grounded (earthed) electrical outlet.

Opening the Screen

Follow these steps to open the LCD screen:

1. Place the computer on a level surface.

2. Turn the computer so its front is facing you.

3. Slide the release latches on the front sides of the computer toward the sides and lift up the screen.
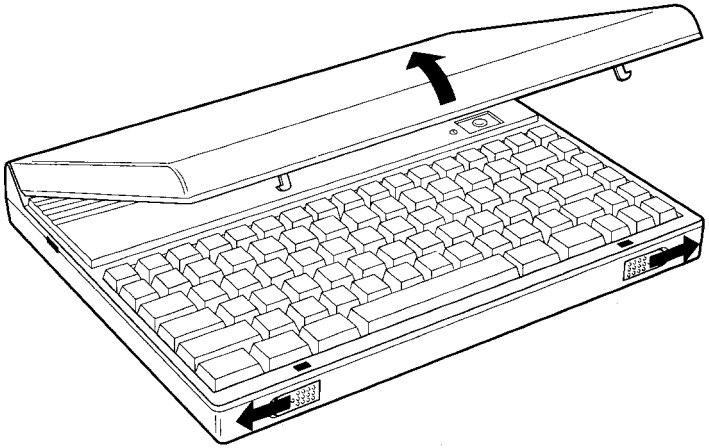
Connecting the Trackball

Your computer package includes a trackball, which you connect to the **EXT KB** port on the left side of the computer.
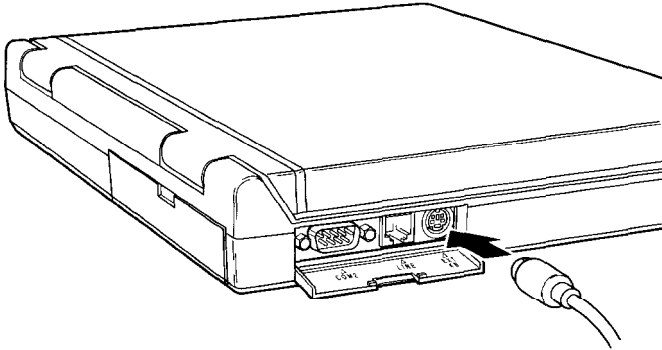
You can attach the trackball to the right or left side of your keyboard or LCD screen; you can also configure it as left- or right-handed. If you attach it to the right side of your keyboard, make sure there is not a diskette in the diskette drive. Also, you will not be able to access the diskette drive while the trackball is attached. See the trackball manual for instructions on changing its configuration and attaching it to your computer.

Before you can use an optional device like the trackball, you must install special software, called a device driver. The device driver allows the operating system and your application software to recognize the device. The device driver and utilities for the trackball have already been installed on your hard disk so the ActionNote will recognize the trackball as soon as you turn it on.

To use the trackball, or any other pointing device attached to the **EXT KB** port, you must enable the PS/2 Mouse Support Option in the ADVANCED CMOS SETUP portion of the Setup program. This option has been enabled for you, but if you want more information on the Setup program, see Chapter 5.

For information on using the trackball, or if you would like to know more about its device driver and utilities, see the documentation that came with it.

Turning On the Computer

When you first use the ActionNote, the battery may not be charged; so make sure the AC adapter is connected when you turn it on for the first time.

Before you turn on the computer, first connect and turn on any external devices you will be using—such as a printer, monitor, or pointing device. (See Chapter 4 for information about installing optional devices.) Then press the power button on the top of the computer to turn it on.
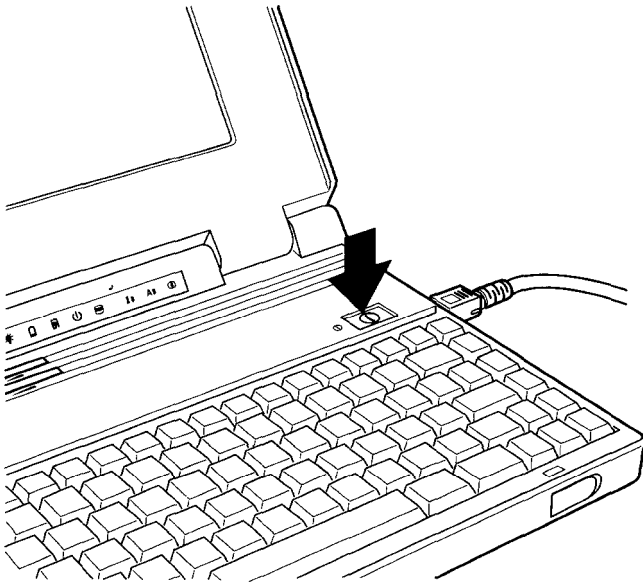
The computer displays copyright information and then performs a series of power-on diagnostics that check the circuit boards, memory, ports, keyboard, and disk drives. The computer displays several messages during the diagnostics, including this prompt:

Hit <DEL>, If you want to run SETUP

If the tests indicate a problem with the system or change in configuration, you will see an error message followed by this prompt

RUN SETUP UTILITY
Press <F1> to RESUME

If this happens, press F1 to run the Setup program and check your system configuration. See Chapter 5 for a complete description of the Setup program.

When the computer completes its testing, it displays a screen describing the system's configuration:

```
 System Configuration (C) Copyright 1985-1990, American Megatrends Inc.,


  Main Processor     :  80486          Base Memory Size   :  640 KB
  Numeric Processor  :  None           Ext. Memory Size   :  3328 KB
  Floppy Drive A:    :  1.44 MB, 3½"   Hard Disk C: Type  :  47
  Floppy Drive B:    :  None           Hard Disk D: Type  :  None
  Display Type       :  VGA/PGA/EGA    Serial Port(s)     :  3F8,2F8
  ROM-BIOS Date      :  05/05/91       Parallel Ports(s)  :  378
```

If necessary, press the Pause button on the keyboard to view the configuration screen. After viewing the screen, press any key to continue the startup process.

Because your computer was set up at the factory, the configuration information should be accurate, If you have changed the computer's setup so that this information does not match your configuration, run the Setup program described in Chapter 5 to correct it.

Your computer comes with MS-DOS and Microsoft Windows installed on the hard disk. However, you can use another operating system, such as OS/2,® UNIX,® or XENIX.® Although this manual includes sample MS-DOS commands, it does not explain how to use the operating system; see your MS-DOS or other operating system manuals for complete instructions.

Your computer starts up in MS-DOS and Windows as soon as it completes the power-on diagnostics. The messages you see as the computer loads MS-DOS depend on how your computer has been set up.

If you plan to use another operating system, you need to install it now. See the documentation that came with your operating system for installation instructions.

The procedures described in this manual assume you are using MS-DOS. If you are using another operating system, see your documentation for instructions on how to perform the various procedures.

Chapter 2

Using Your Computer

This chapter describes how to use your ActionNote computer on a daily basis. It provides information on the following procedures:

❏ Taking care of the computer

❏ Making a backup copy of the VGA utilities

❏ Using the password function

❏ Using the keyboard

❏ Resetting the computer

❏ Turning off the computer

❏ Changing the CPU speed

❏ Using the LCD screen

❏ Using diskettes

❏ Using the hard disk

❏ Using memory.

Taking Care of the Computer

Before you begin using your computer, read the following guidelines to ensure proper maintenance of the ActionNote:

❏ Keep the computer and AC adapter dry, and do not subject them to extreme heat or cold.

❏ Do not place external devices on top of the computer, even if it is closed, to prevent damage to the LCD display.

❏ When you are not using the external device connectors, keep the covers closed to prevent damage to the ports.

❏ Always operate the computer with the battery pack installed.

❏ Occasionally clean the exterior of the computer with a soft, damp cloth.

❏ Occasionally clean the LCD display using glass cleaner on a soft cloth; do not apply the cleaner directly to the screen.

Backing Up the VGA Utilities

Your computer comes with VGA drivers and utilities already loaded on the hard disk. To protect these important files, you should back them up onto a diskette. The files are located in the \VGAUTILS directory.

Follow these steps to backup your VGA drivers and utilities:

1. Insert a blank, formatted diskette in the diskette drive.

2. Log onto the C:\VGAUTILS directory.

3. Type the following and press Enter

        COPY *.* **A :**

See your MS-DOS documentation for more information about copying files. For information on using the VGA utilities and installing the drivers, see Chapter 6.

Using the Password Function

The ActionNote provides password security for the entire system or only the Setup program. This allows you to safeguard all your data or only your Setup configuration. The password function is optional and you do not have to set a password if you don't want to use one.

You use the Setup program to first enable or disable a password and then define it. (See Chapter 5 for instructions.)

If you enable the power-on password, you must enter it each time you turn on or reset your computer. (Resetting the computer is described later in this chapter.) The computer prompts you for the password after it completes its power-on diagnostics.

If you enable the Setup password, you must enter it before you can use the Setup program. The computer prompts you for the password after you press Delete to start Setup.

Typing the Password

You see this prompt when the password feature is activated:

    Enter CURRENT password:

Type the correct password and press Enter. To protect your password, the screen does not display the characters you type.

If you do not type the correct password, the screen displays an X and repeats the password prompt. Try typing the password again.

The computer allows you three tries to enter it correctly. After the third incorrect attempt, the system displays a blinking face icon and locks up. You must reset the system to try again.

Note

If you want to change your current password or disable the password function, you need to use the Setup program. See Chapter 5 for instructions. If you forget your password, call the Epson Connection at 1-800-922-8911 for assistance.

Using the Keyboard

Although the keyboard on the ActionNote has only 84 keys
(85 on the international version), it still provides all the functions
of a full-size (102-key) keyboard. For example, a full-size keyboard
has a separate numeric keypad you can use for both numeric entry
and cursor control. The ActionNote has an embedded numeric
keypad that you access using the Fn and Shift keys in the same
way you use the Shift key to enter uppercase characters. (Using
the embedded numeric keypad is described later in this section.)

Note
The keyboard on the ActionNote is available with different
layouts for different languages. Special keytop sets are available
in some countries. Additionally, you can use MS-DOS to
reassign the layout of your keyboard to duplicate that of
another country. See your MS-DOS manual for more
information.

The following illustration shows the 84-key, US keyboard layout.
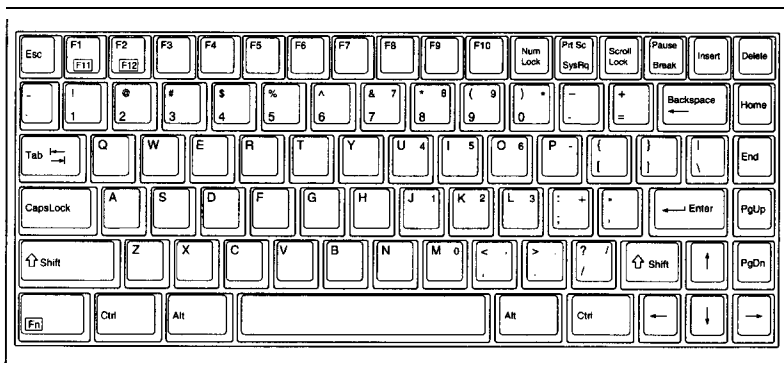
This section describes how to use the following features on your keyboard:

❏ Special keys

❏ The F11 and F12 keys

❏ The embedded numeric keypad.

Special Keys

Certain keys on your keyboard serve special functions when your computer is running MS-DOS or application programs. The special keys are described in the following table.

Special key functions

Key	Purpose
Tab	Moves the cursor one tab to the right in normal mode and one tab to the left in Shift mode.
CapsLock	Changes the letter keys from lower- to uppercase; changes back to lowercase when pressed again The number/symbol keys on the top row of the keyboard and the symbol keys in the main part of the keyboard are not affected.
Shift	Produces uppercase characters or the top symbols on the keys when used with the main character keys. Produces lowercase characters when the Caps Lock function is on. Note: Use this key to reactivate the system when it is in Suspend mode.
Fn	Controls functions on the embedded numeric keypad as well as other special functions.
Ctrl	Works with other keys to perform special (control) functions.
Alt	Works with other keys to enter alternate character codes or functions.

Special *key functions (continued)*

Key	Purpose
Backspace	Moves the cursor back one space,
Enter	Ends a line of keyboard input or executes a command.
Home End PgUp PgDn	Control cursor location.
Esc	Cancels the current command line or operation.
F1-F10 F11 F12	Perform special functions within application programs,
NumLock	Turns on the numeric keypad; changes back when pressed again.
PrtScr	Prints the screen display on a printer.
SysReq	Works as defined by an application.
Scroll Lock	Controls scrolling in some applications.
Pause	Suspends the current operation.
Break	Terminates the current operation (when used with Ctrl).
Insert	Turns the insert function on and off.
Delete	Deletes the character marked by the cursor.

The NumLock, CapsLock, and Scroll Lock keys work as toggles; press them once to turn on the function and again to turn it off. When the function is on, the corresponding LED above the keyboard is lit.

Using F11 and F12

The F11 and F12 keys perform special functions within application programs. You activate these keys by using Fn with the F1 and F2 keys. Hold down Fn and press F1 to produce F11; hold down Fn and press F2 to produce F12.

Using the Embedded Numeric Keypad

The embedded numeric keypad allows you to enter numeric characters from the keyboard when the Num Lock function is on. You can also use the keypad to control the cursor. The embedded numeric keypad is shown below:
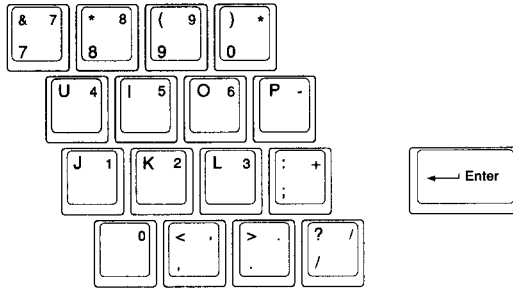
Press NumLock to turn Num Lock (and its LED) on and off. Then press the key to enter the numeric character printed on the right-hand side of the key top. Press Shift plus the keys to control the cursor. You can press Fn plus the key to enter the alphabetic character on the key; press Fn Shift plus the key to enter the alphabetic character in uppercase.

When Num Lock is off, you can generate the numeric character by pressing Fn Shift plus the key. You can move the cursor by pressing Fn plus the keys.

The following table summarizes how to use the embedded
numeric keypad.

Embedded keypad functions

Embedded numeric keys	NumLock on	NumLock off
Keys pressed by themselves	numeric	alphabetic
Keys pressed with Shift	cursor control	upper case alphabetic
Keys pressed with Fn	alphabetic	cursor control
Keys pressed with Shift and Fn	upper case alphabetic	numeric

Resetting the Computer

If necessary, you can clear the computer's current settings or its
memory without turning it off; you do this by resetting it. For
example, if an error occurs and the computer does not respond to
your keyboard entries, you can reset it to reload the operating
system and try again.

Caution
Resetting the computer erases any data in memory you have
not saved, so do not use the reset function unless necessary.
Also, some programs classify and store new data when you exit
them properly; so do not reset the computer before you exit a
program, if possible.

To reset the computer, the operating system must be either on the hard disk or on a diskette in drive A. If you are using MS-DOS, hold down Ctrl and Alt and press Delete. The screen goes blank for a moment and then the computer reloads MS-DOS.

If resetting the computer does not correct the problem, you probably need to turn it off and back on again.

Turning Off the Computer

Before turning off the computer, save your data and leave the application program you are using. Make sure the hard disk drive and the diskette drive lights are off, then turn off the computer by pressing the power button on top of the computer.

> Caution
> Always make sure the computer is off when you connector disconnect equipment, such as a printer or the trackball.

Changing the CPU Speed

Your computer's processor can operate at two speeds: high or low (8 MHz). At high speed, the computer performs all tasks faster. You may need to select low speed, however, to run some copy-protected programs or a program that has a specific timing requirement. You can also use low speed to reduce power consumption.

Whenever you turn on or reset the computer, it starts up in high speed. To change the speed, you must turn on the Num Lock feature.

If necessary, press NumLock to turn Num Lock (and its LED) on. Then, to change to low speed, press Ctrl Alt −. To change back to high speed, make sure Num Lock is on, and press Ctrl Alt +.

Note
You must press − or + on the embedded numeric keypad only.

Using the LCD Screen

The screen on your ActionNote is a backlit monochrome LCD. You can adjust the brightness and contrast with the two controls on the top left side of the computer. Adjust the switches to produce the best display for your viewing angle.

Slide the brightness switch to the right to lighten the brightness, and to the left to darken the brightness. Slide the contrast switch to the right to increase the contrast, and to the left to decrease the contrast.

Using Diskettes

Be sure to purchase high-quality diskettes to ensure reliability. For the 3½-inch, 1.44MB diskette drive in your ActionNote, you can use either of the following types of diskettes:

❏ 720KB, double-sided, double-density (usually labelled 2DD)

❏ 1.44MB, double-sided, high-density (labelled 2HD).

Inserting and Removing Diskettes

To insert a diskette, hold it with the label facing up and the metal shutter leading into the drive, Slide it into the drive until it clicks into place.
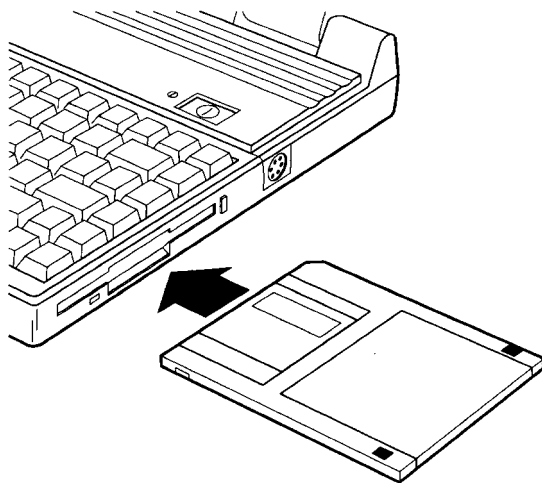
When you want to remove the diskette, make sure the drive light is off, then press the release button. When the diskette pops out, remove it and store it properly.

Caution
Never remove a diskette or reset or turn off the computer while the drive light is on. You could lose data. Also, be sure to remove all diskettes before you turn off the computer.

Write-protecting Diskettes

You can write-protect a diskette to prevent its data from being altered. When a diskette is write-protected, you can read it and copy data from it, but you cannot store new data on it or delete any files it contains. If you try to change data stored on a write-protected diskette, you see an error message.

To write-protect a 3½-inch diskette, turn the diskette over so you are looking at the underside. Slide the switch in the lower left comer toward the edge of the diskette until it clicks into position, exposing a hole.

write-protect
switch
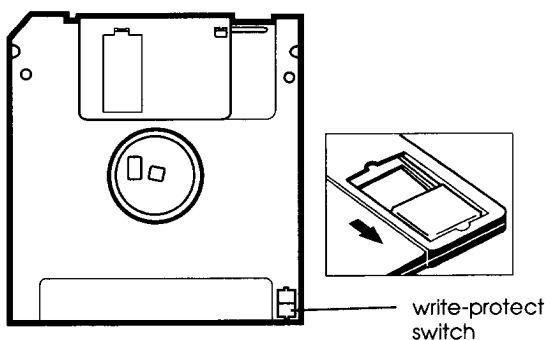
To remove the write protection, slide the switch toward the center of the diskette until the hole is covered.

Making Backup Copies

It is important to make copies of all your data and system diskettes. Make backup (working) copies of all diskettes that contain programs, such as your MS-DOS and Windows diskettes; then use only the copies. Store the original diskettes away from your working diskettes. Also, copy your data diskettes as necessary to keep your files up-to-date.

You'll probably use your hard disk to store the programs and data files you use regularly. Keep backup copies of all your files on diskettes. For large amounts of data, you might want to consider a portable tape backup unit.

You can copy your data in several ways. See your MS-DOS or other operating system manual for instructions.

Using a Single Diskette Drive System

MS-DOS expects a computer to have at least two diskette drives (A and B), and displays prompts and messages accordingly. Your ActionNote has one 3½-inch diskette drive; this is drive A. MS-DOS uses the one drive as two by displaying alternate prompts for the source and target diskettes.

For example, if you need to make a copy of a diskette, you can insert the diskette in drive A and enter the following command:

```
DISKCOPY A : B :
```

MS-DOS copies the data from drive A (the source diskette) to its memory and then prompts you to insert the diskette for drive B. At this point, you remove the original diskette, insert a blank diskette (the target diskette), and press any key to continue. Then the operating system copies the data from its memory to the second diskette.

When you swap diskettes this way, it is a good idea to write-protect the original diskette so you don't accidentally write over it. (See "Write-protecting Diskettes" earlier in this chapter for more information.)

Using a Hard Disk

The hard disk installed in the ActionNote has been prepared for use at the factory and has MS-DOS and Windows installed. If you plan to use MS-DOS or Windows, you can install your application programs and begin work. See the documentation that came with your programs for instructions.

Follow these precautions to protect your hard disk from damage and to avoid losing data:

❏ Never turn off or reset the computer when the hard disk drive light is on. This light indicates that the computer is copying data to or from the hard disk.

❏ Do not move the computer when the power is on. After turning the power off, wait 20 seconds before moving it. This allows the disks in the drive to stop spinning and the hard disk read/write heads to lock in place so you do not damage the drive.

Backing Up the Hard Disk

Although the hard disk is very reliable, be sure to backup your files in case you lose some data accidentally. Also, make copies of all your system and application program diskettes before copying the programs to the hard disk. See your operating system manual for instructions.

Using Memory

Your computer comes with 4MB or 8MB of memory, and you may have installed an optional expansion memory module to increase the total amount. This section describes how the memory in your computer works. Also be sure to see your MS-DOS manual for complete information on memory management.

A computer's memory is divided into three types: conventional, reserved, and extended. The following diagram shows the relationships between these types of memory and their addresses.
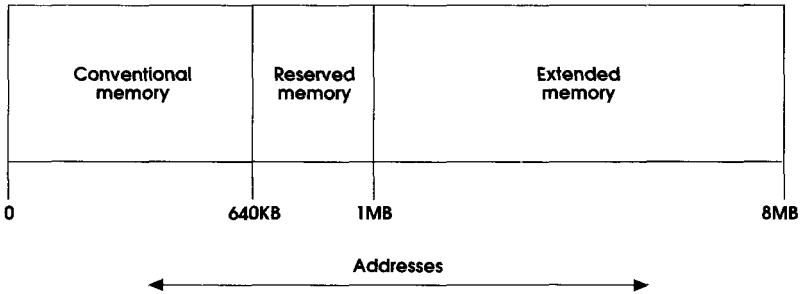
All memory in a computer is managed using addresses—numbers that describe the location of each byte of data. Each memory chip must have its own set of unique addresses so that the operating system knows where to store and find data.

Conventional memoy is memory that MS-DOS recognizes and manages directly. The size of conventional memory is limited to 640KB and has addresses in the range 0 to 640KB.

Reserved memory is memory in the range 640KB to lMB. The system enhances its performance by using 128KB of this memory as shadow RAM, and the remaining memory is available.

Extended memory is memory with addresses in the range lMB to 8MB, and is used only by the following:

❏ Certain operating systems, such as OS/2

❏ Some MS-DOS interfaces, such as Windows

❏ Some RAM disk programs, such as VDISK

❏ Some hard disk caching programs, such as SMARTDRV

❏ Certain specially-written MS-DOS applications.

Use of extended memory requires a memory manager. Most versions of MS-DOS include a standard extended memory manager. If you are using MS-DOS, Windows, and other compatible programs, it is best to use one of the memory managers (such as HIMEM.SYS) that came with your software because these memory managers have been tested and proven reliable.

Most MS-DOS commands and application programs cannot use extended memory directly. They need to use *expanded memory,* which uses a portion of reserved memory as a window to access RAM beyond lMB. This type of memory allows some MS-DOS applications to get around the 640KB size limitation. You control expanded memory with a memory manager (such as EMM386.EXE), which enables the computer to use extended memory as expanded memory.

Chapter 3

Powering the Computer

You can operate your ActionNote using the AC adapter, optional automobile adapter, or the removable battery pack. This chapter describes how to use these power sources, and how to best conserve energy when using the battery pack.

Using the AC Adapter

To conserve the battery, use the AC adapter whenever you have access to an electrical outlet. When the computer runs on the AC adapter, it draws power from the adapter instead of using the battery. Whenever the AC adapter is connected, it recharges the battery pack.

The AC adapter is ideally suited for travel to foreign countries. It is designed to operate in 100 to 240 VAC ranges with a frequency of 50 to 60 Hz. All you need is an appropriate plug for the electrical socket; see Appendix C for specifications.

See Chapter 1 for instructions on how to connect the AC adapter to the computer.

Using the Battery Pack

The removable NiCad battery pack powers the computer when the AC adapter is not connected. The length of time the battery can provide power depends on how you use the ActionNote. If you operate the computer using a bright screen display and access the hard disk often, you will consume more battery power and shorten the length of the charge.

To increase the amount of time you can use the computer without electrical power, you can purchase additional battery packs. Each battery pack comes with a carrying case to protect it when not in use. Maintaining a supply of charged battery packs allows you to replace a low battery and continue your work.

Note
Use only the battery pack designed for use with the ActionNote (A880451).

Replacing the Battery Pack

Follow these steps to install the battery pack:

1. Turn off the computer.

2. If the AC adapter is connected, disconnect it.

3. Turn the computer upside down with the back facing you.

4. Press down on the release buttons on the battery compartment cover and slide the cover toward you.
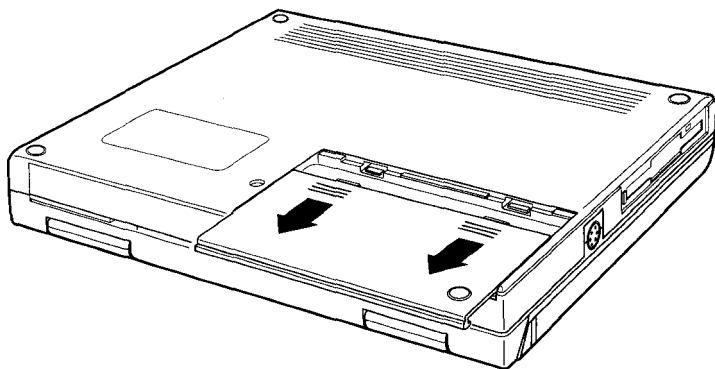
5. Pull up on the cloth tab and lift out the low battery.

6. Remove the fully charged battery pack from its carrying case and slide it into the slot. Insert the right side (with contacts) first, then press on the left side to secure the battery.
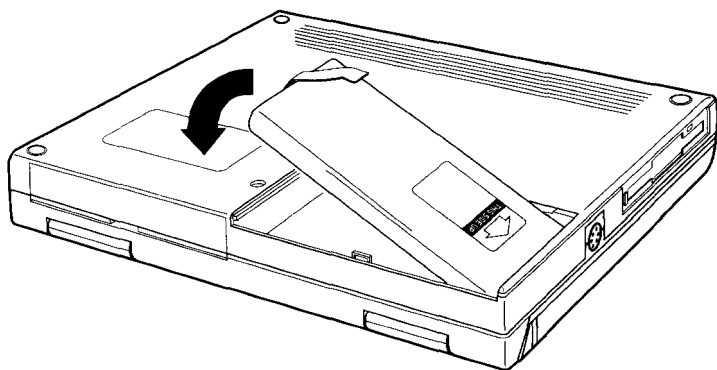
7. Slide the battery cover back into place making sure the tabs on the cover fit into the slots on the computer's cover. Press the cover from the back side until it snaps closed.
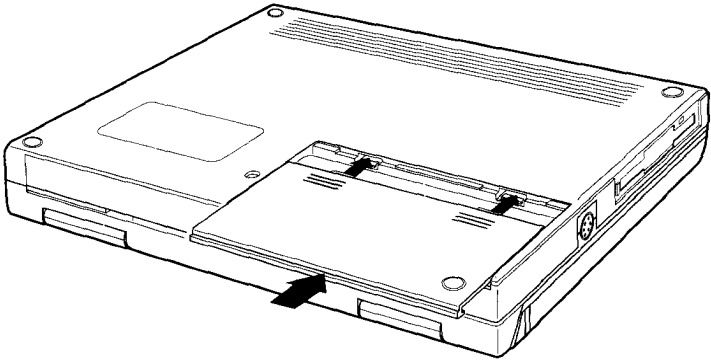
Note
When you replace the battery pack, make sure the new battery is fully charged; otherwise you'll need to recharge it before you can use it.

8. Turn the computer right side up.

Recharging the Battery

The battery pack that comes with your ActionNote is rechargeable. You may need to charge the battery pack before using it for the first time, and you must charge it when it runs low on power. Your computer warns you when the battery is low through the low battery light.

To charge the battery pack, leave it in the computer. Connect the AC adapter to the computer and to an electrical outlet. As an alternative, you can connect the optional automobile adapter to the cigarette lighter in your car. The computer charges the battery whenever the adapter is attached.

The charging light blinks while the battery is charging. When the battery is completely charged, the light stays on.

The computer takes approximately 3½ hours to charge a completely discharged battery pack. If you use the system while the battery is recharging, it can take up to 6 hours. If the battery still has some charge left when you start charging, the time will be less.

If you have additional battery packs, it is a good idea to keep them fully charged so you can use them to replace the battery pack in your computer when it runs low. This is especially useful if you are travelling and will need to run the computer off the battery; an extra battery pack or two extends the length of time you can power the computer without the AC adapter.

Rechargeable batteries like the one supplied with your ActionNote have a charge "memory." If you frequently start to recharge the battery before it runs out completely, it starts to "remember" this discharge level. When you use it again, it may stop supplying power at the same level.

To reduce the memory effect and extend the life of your battery, you should let it discharge completely whenever possible before recharging it. If you use the computer every day, you should completely discharge the battery at least once a week.

If you find that over time the battery is losing its charge sooner, the life of the battery may be reaching its end. Try letting the battery discharge completely; then recharge it. If this fails, replace it with a new battery pack.

Note
When your battery can no longer be recharged, please contact your local government agency responsible for hazardous waste disposal. NiCad batteries are considered hazardous waste and should be recycled or disposed of properly.

Low Battery Indicator

When the battery's power is getting low, the low battery light starts flashing and the computer starts beeping. At this point, replace it with a fully charged battery or connect the AC adapter. You need to recharge the battery (as described above) before you can use it again to power the computer without the AC adapter.

If your AC adapter is not available, follow these steps:

1. Complete your current activity.

2. Save your data.

3. Exit the program you are using.

4. Turn off the computer.

Once your computer starts beeping, you have approximately two minutes to save your data. If the batteries run out suddenly, you will lose any data you have not saved.

Turn off the computer before replacing the battery pack. Otherwise, you will lose data, and you may even damage the computer.

Using the Suspend/Resume Switch

The suspend/resume switch provides an efficient way to save battery power. This switch is located on the top left side of the computer.

suspend/resume switch
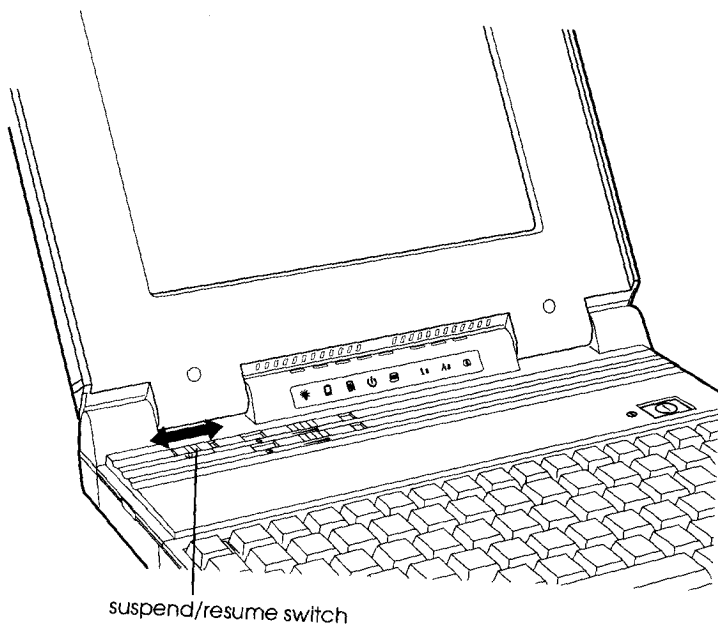
Slide the suspend/resume switch to the right to temporarily stop system activity when you do not need to use your computer for short periods of time. The screen goes dark and the computer suspends power to its components and devices; it continues to supply power to the RAM. (If you are not going to use the computer for a longer time—20 minutes or more, for example—turn it off.)

To resume activity, slide the switch to the left or press the Shift key. The computer resumes normal operation at the point at which you suspended it.

Using Setup to Conserve Battery Power

The Setup program includes power management options that enable you to conserve battery power. These options allow you to control various functions of the computer so you don't waste power on devices you are not using.

The power management options are available from the ADVANCED CHIPSET SETUP portion of the Setup program. You can specify timeout periods for the LCD display, the hard disk drive, and/or the system. For a complete description of these options and the Setup program, see Chapter 5.

Chapter 4
Connecting Optional Devices

This chapter describes how to connect the following optional devices to your ActionNote:

❏ External monitor

❏ Parallel printer or other device

❏ Serial device

❏ Trackball, mouse, or other pointing device, or an external keyboard

❏ Internal fax/modem

❏ Expansion memory modules

❏ Numeric coprocessor.

Make sure the computer is turned off before you install or connect any of these devices. This is a safety precaution and is also necessary for the computer to recognize that you connected a new device.

The interfaces for the **VIDEO**, **PRINTER**, and COM 1 ports are located on the back of the computer. The interfaces for the **COM** 2, LINE, and **EXT KB** ports are located on the left side of the computer. To access any of these ports, open the port cover by pulling down on the notch at the top.
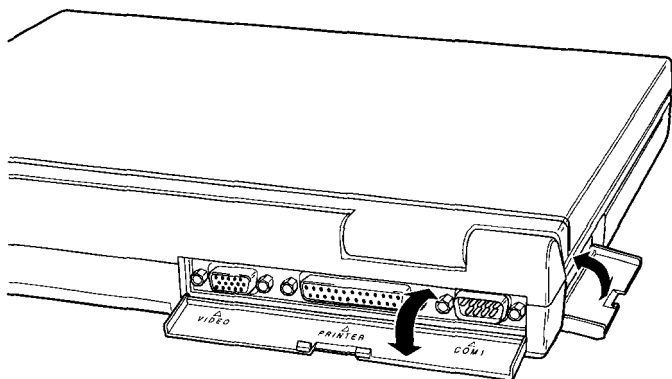
Connecting an External Monitor

The **VIDEO** port on your computer allows you to connect an external color or monochrome VGA monitor. When a monitor is connected, you can display text and graphics on both the LCD screen and the monitor. You can also display higher-resolution video modes on the external monitor.

Follow these steps to connect a monitor

1. Make sure both the computer and the monitor are turned off.

2. Connect the monitor cable to the port labelled VIDEO on the back of the computer.
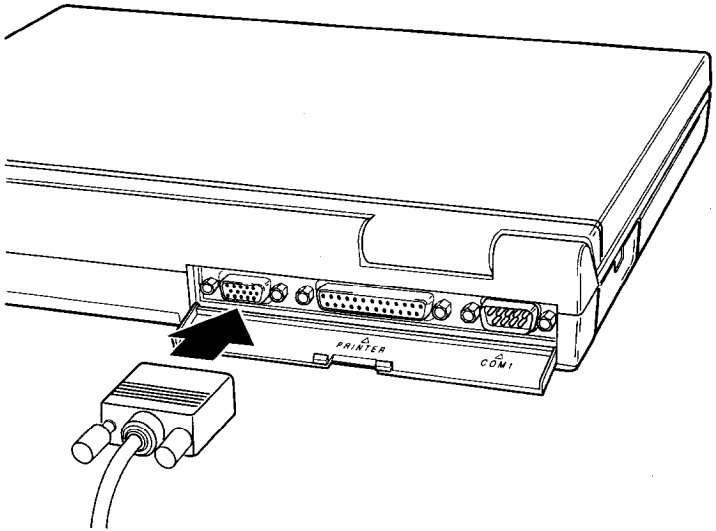
3. If the connector has retaining screws, tighten them by hand or with a screwdriver.

4. Connect the other end of the cable to the monitor, if it is not already attached.

5. Connect the monitor's power cable to a grounded (earthed) electrical socket.

See Chapter 6 for details on using the VGACONF utility, which allows you to change the display characteristics of your LCD and/or external monitor.

Connecting a Parallel Printer

You can use the **PRINTER** port to connect a parallel device, such as a Centronics®-compatible printer. Before connecting a printer, check the manual that came with it to see if you need to change any of its settings.

You can also connect some third-party external diskette drives to this port. Check with the Epson Connection for product compatibility requirements. If you do connect an external diskette drive to this port, be sure to run the Setup program to identify the **drive.**

Follow these steps to connect a parallel device:

1. Place the printer or other device in a convenient location near your computer, so that the power and data cables will not interfere with the paper or paper trays.

2. Make sure both the computer and printer are turned off.

3. Connect the printer cable to the **PRINTER** port.
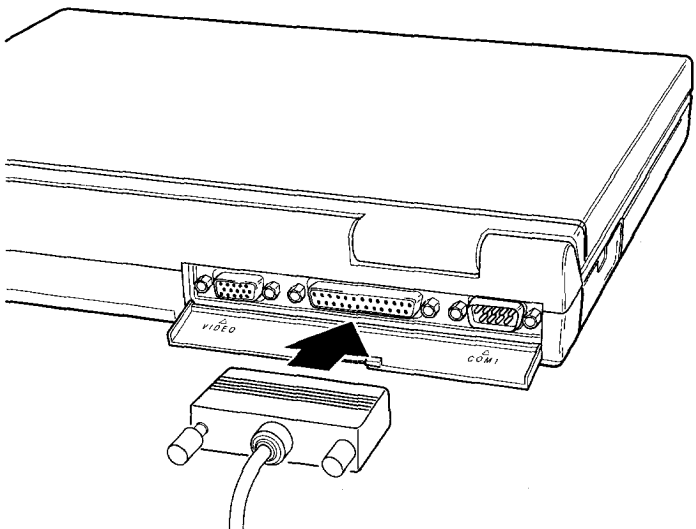
4. If the connector has retaining screws, tighten them by hand or with a screwdriver.

5. Connect the other end of the cable to the printer. If the printer interface has retaining clips, squeeze them gently until they snap into place.

6. Connect the printer's power cable to a grounded (earthed) electrical socket.

Connecting a Serial Device

You can use the COM 1 and/or COM 2 port to connect serial devices, such as a serial printer or plotter. You could also connect a modem or pointing device, such as a trackball or mouse.

Note
You cannot use the COM 2 port if the internal fax/modem is installed.

Follow these steps to connect a serial device:

1. Make sure both computer and the serial device are off.

2. Connect the serial cable to the COM 1 or COM 2 port.
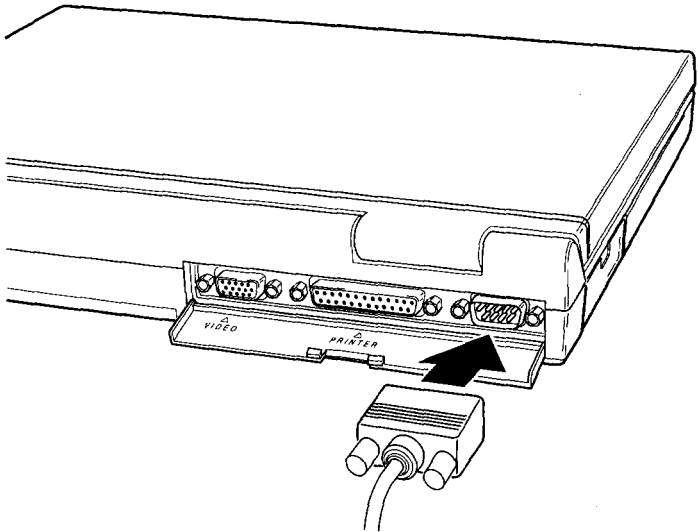
3. If the connector has retaining screws, tighten them by hand or with a screwdriver.

4. Connect the other end of the cable to the serial device. If the connector has retaining screws, tighten them.

5. Connect the serial device's power cable (if it has one) to a grounded (earthed) electrical socket.

Check the documentation that came with your serial device to see if any other steps are necessary.

Checking the Serial Port Settings

The **COM 1** and **COM 2** ports are capable of sending and receiving data at a variety of speeds and with many different protocols. This means you need to configure the port to match the signals of the serial device. As a general rule, choose the highest speed (baud rate) and the protocol that provides the best error detection.

Check the documentation that came with your serial device to see if you need to adjust any of its settings.

Note

If your application program cannot send printer output directly to the serial port, you can use the MS-DOS MODE command to redirect the output. You can even tell the computer to redirect printer and serial port settings automatically if you place the appropriate MODE commands in your AUTOEXEC.BAT file, See your MS-DOS manual for instructions.

Using the EXT KB Port

You can use the **EXT KB** port to connect the trackball or any PS/2-compatible pointing device. See Chapter 1 for detailed instructions.

You can also connect the mouse/keyboard adapter to this port. If you use the adapter, you can connect both a pointing device and an external keyboard at the same time. You can connect a PS/2-compatible keyboard to this adapter, but it does not support AT®-type keyboards.

Connecting An Optional Pointing Device

You can connect a PS/2-type mouse or other pointing device to the **EXT KB** port as shown below, Before you can use the mouse or other pointing device with your applications, you need to install the special software driver that came with it. See the documentation supplied with the device for instructions.
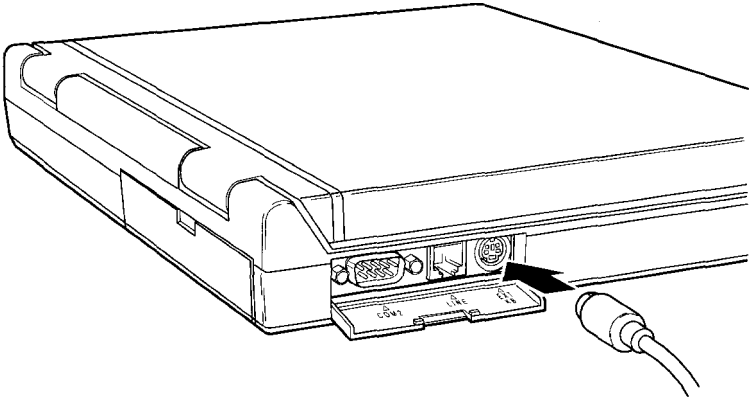
Also, before using a pointing device attached to the **EXT KB** port, you must enable the PS/2 Mouse Support Option in the ADVANCED CMOS SETUP portion of the Setup program. See Chapter 5 for details on using the Setup program.

Connecting an External Keyboard

If you are typing for extended periods of time, you may want to connect an external keyboard. You must first connect the mouse/keyboard adapter to the **EXT KB** port on the computer. Then connect the keyboard to the adapter.

Connecting the Internal Fax/Modem

If the internal fax/modem is installed in your ActionNote computer, you can connect it directly to your telephone line using a standard phone jack. The modem will then be ready to use.

Note
If your computer did not come with the internal fax/modem installed, you must have an Authorized Epson Servicer install it.

If you purchased a fax/modem with your computer, a telephone cable is included in your package. Insert one end of the modular jack cable into the LINE port on the left side of the computer and insert the other end into a modular jack outlet.
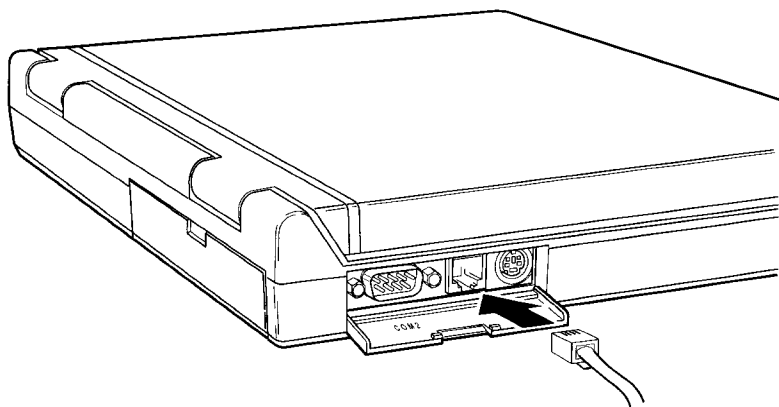
If you have a fax/modem, your package also includes BitCom data communications software and WinFax LITE fax transmission software already loaded on your hard disk drive. See the documentation that came with these applications for details on how to use them.

Appendix B provides a summary of the modem's features and internal command set. You need to use the fax/modem's built-in set of commands only if you are not using the telecommunications software package. Each communications program provides its own set of commands that you will use to control the modem instead of the built-in set.

> **Note**
> Be sure to read the modem FCC information at the front of this manual to avoid electrical interference problems.

Adding Memory Modules or a Numeric Coprocessor

The sections below describe how to add memory to your computer and install a numeric coprocessor. To access the sockets for these options, you need to remove the keyboard.

> **Caution**
> It is best to have your Authorized Epson Servicer install the memory module or a numeric coprocessor for you because they can be damaged easily if installed incorrectly. If you prefer to install them yourself, carefully follow all the instructions in this section. If you have any questions at all, please contact your Authorized Epson Servicer or call the Epson Connection.

Removing the Keyboard

To remove the keyboard, follow these steps:

1. Make sure the computer is turned off.

2. Disconnect all cables from the ports and connectors on both the sides and back of the computer. (Unplug the AC adapter from its wall outlet, if necessary.)

3. Turn the computer upside down with the front facing you.

4. Remove the battery pack (as described in Chapter 3).

5. Remove the three screws on the front edge of the computer's case.
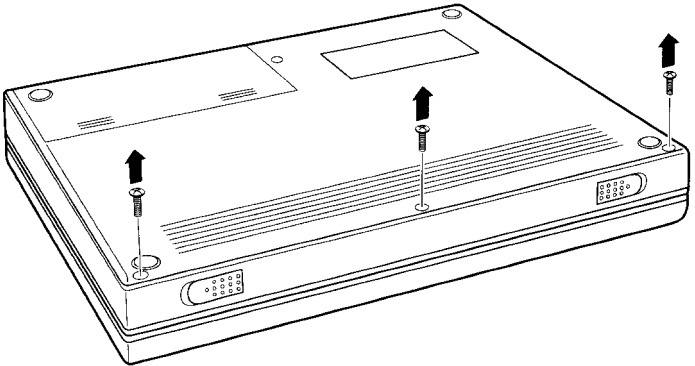
6. Turn the computer right side up.

7. Open the top cover.

8. Carefully detach the keyboard by lifting upon the front and sides of the keyboard. Then pull it toward you.
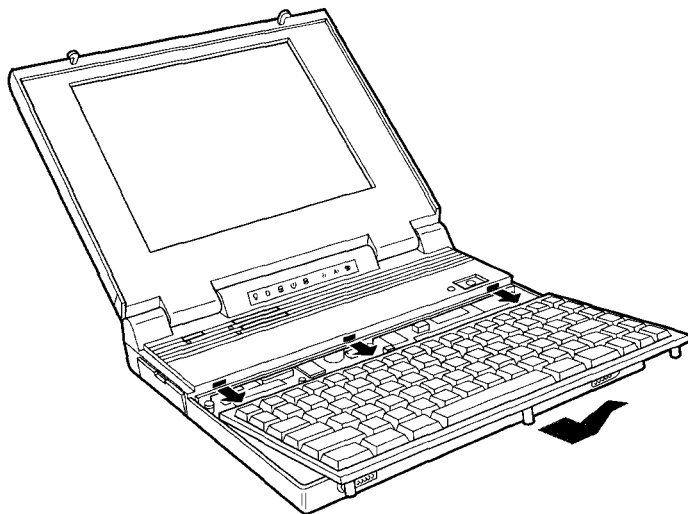
9. Turn the keyboard upside down by tilting the front of the keyboard up and back toward the LCD. Carefully set the keyboard on top of the computer. Be careful not to strain or twist the keyboard cables.

> WARNING
> Be sure to ground yourself every time you remove the keyboard, If you are not properly grounded, you could generate an electric shock that could damage one of the computer's components when you touch it.

keyboard

memory module   coprocessor socket
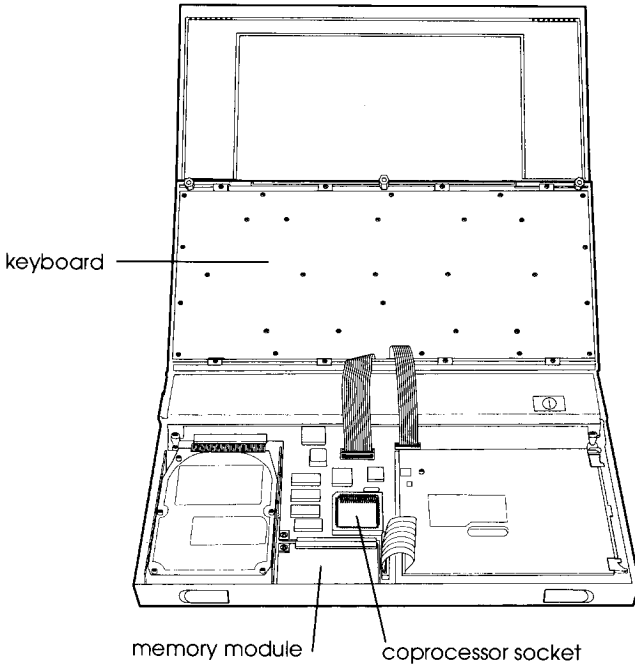
Installing a Memory Module

Your computer comes with 4MB or 8MB of memory. Two MB are soldered directly onto the system board, and a 2MB (or 6MB) memory module is installed in the computer (as shown above). You can increase your memory to 8MB by replacing the 2MB memory module with a 6MB module.

Follow these steps to install a memory module:

1. Remove the keyboard as described above.

2. Remove the screw that attaches the 2MB memory module to the system board.
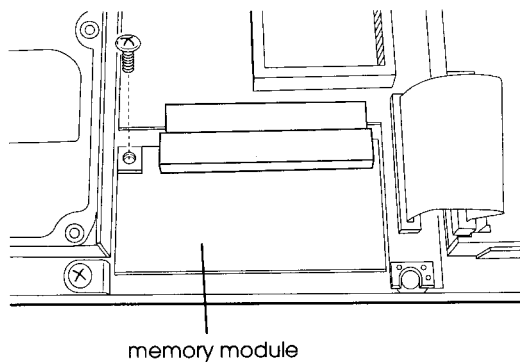
memory module

3. Gently disconnect the memory module from its socket by sliding the module toward the front of the computer.
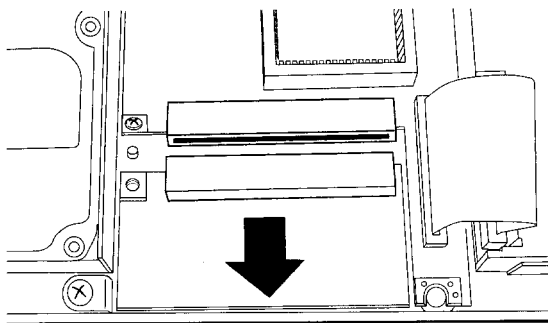
4. Lift the memory module out of the computer.

5. Lower the new memory module straight down into the computer until its connector aligns with the socket on the system board. Make sure the hole for the attachment screw is on your left.

6. Carefully press the module straight into the socket. The connector and socket are designed so they fit together only if you have aligned them correctly; so do not force them. If you have trouble, remove the module and try again.
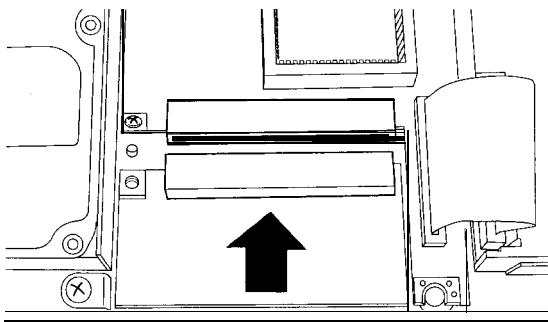
7. When the connector is firmly attached to the socket, replace the screw on the left side of the module.

8. Replace the keyboard as described on page 4-18.

After you reassemble your computer, you need to run the Setup program to make sure it recognizes the new memory amount. As soon as you turn on the computer, it will prompt you to run Setup because of the memory mismatch. See Chapter 5 for instructions.

If you later remove a memory module, be sure to run the Setup program again.

Installing a Numeric Coprocessor

Your computer has a socket for a numeric (math) coprocessor, which can be used for the Cyrix 83S87-25 coprocessor. Installing a numeric coprocessor speeds up your computer's numeric calculations and graphic displays when you are using certain application software. Contact the Epson Connection or your sales representative for additional information on choosing a numeric coprocessor compatible with the Cyrix 486SLC2-50 CPU.

The coprocessor chip can be easily damaged and is expensive to replace; so if you don't feel confident about installing it yourself, ask your Authorized Epson Servicer for assistance.

To install the coprocessor, follow these steps:

1. Remove the keyboard as described on page 4-11.

> **Caution**
> Make sure you ground yourself before you touch the coprocessor chip. Then remain as stationary as possible while you install it. Do not touch the pins on the chip; handle the coprocessor only by the edges of its case.

2. Place the coprocessor over the socket so that the round indentation indicating pin 1 is in the upper left corner. Then push it down into the socket.
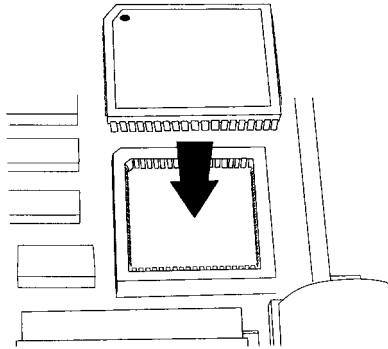
3. Replace the keyboard as described in the next section.

The computer automatically detects when's coprocessor is installed. When you turn on the computer, the system configuration screen shows that a numeric coprocessor is present.

Caution
If you need to remove the math coprocessor, do not try to do it yourself. This procedure requires a special extraction tool. Contact your Authorized Epson Servicer.

Replacing the Keyboard

After installing a memory module or numeric coprocessor, you must replace the keyboard. Follow these steps:

1. Carefully lift the keyboard off the top of the computer, turn it right side up, and align it over the front of the computer. Make sure the keyboard cables are not twisted.
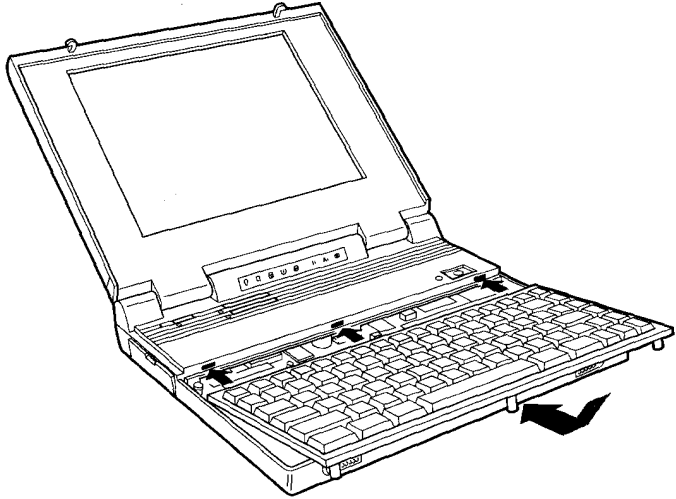
2. Carefully press the keyboard forward until the tabs on the keyboard fit into the slots *on* the computer's cover.

3. Press down on the front of the keyboard until it is securely in place.

4. Turn the computer upside down with the front facing you and replace the three screws on the front side of the cover.
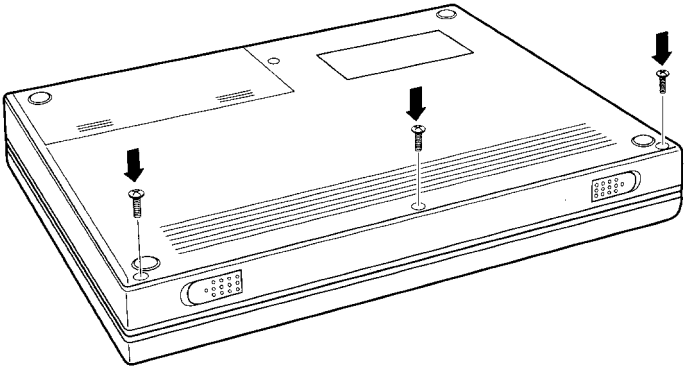
5. Replace the battery pack.

6. Turn the computer right side up.

7. Connect any optional devices that you may have installed previously.

Chapter 5
Running Setup

The Setup program defines your system's configuration so the computer uses all of its devices properly. Because your computer was set up at the factory, the configuration information is accurate when you first setup the computer. If you change the computer's configuration by adding optional devices, however, you need to run the Setup program to update the system.

The Setup program is stored in the computer's ROM BIOS (read-only memory, basic input/output system), so you can run the program any time you turn on or reset the computer. Setup lets you verify or change the following settings:

❏ Standard CMOS settings, such as the current date and time and drive types

❏ Advanced CMOS settings, such as typematic rates, startup functions, and password checking

❏ Advanced chipset settings, such as power management functions.

The configuration you define through the Setup program is stored in a special area of memory called CMOS RAM. This memory is backed up by a battery, so it is not erased when you turn off or reset the computer. Whenever you start the computer it checks the settings, and if it discovers a difference between the information in CMOS RAM and your system's configuration, it prompts you to run Setup. You see a message such as the following:

```
CMOS display type mismatch
RUN SETUP UTILITY
Press <F1> to RESUME
```

If this happens, press F1 to run Setup and correct the setting.

Starting the Setup Program

To start the Setup program, you must turn on or reset the computer. During the memory test, press Delete to start the Setup program.

If you have already enabled the Password function for the Setup program, you will be prompted to enter it now.

You see the first menu screen:

```
┌─────────────────────────────────────────────────────────────────┐
│            BIOS SETUP PROGRAM - AMI BIOS SETUP UTILITIES          │
│         (C)1990 American Megatrends Inc., All Rights Reserved     │
├─────────────────────────────────────────────────────────────────┤
│                                                                   │
│                                                                   │
│                      STANDARD CMOS SETUP                          │
│                      ADVANCED CMOS SETUP                          │
│                      ADVANCED CHIPSET SETUP                       │
│               AUTO CONFIGURATION WITH BIOS DEFAULTS               │
│                       CHANGE PASSWORD                             │
│                      HARD DISK UTILITY                            │
│                     WRITE TO CMOS AND EXIT                        │
│                   DO NOT WRITE TO CMOS AND EXIT                   │
│                                                                   │
│                                                                   │
├─────────────────────────────────────────────────────────────────┤
│                                                                   │
│   Standard CMOS Setup for Changing Time, Date, Hard Disk Type, etc.│
│                                                                   │
│      ESC:Exit      ↓→↑←:Sel    F2/F3:Color    F10:Save & Exit     │
└─────────────────────────────────────────────────────────────────┘
```

Press ↑, ↓, ←, or→ · to move from one menu item to the next. The screen displays a brief description of the highlighted menu item. When the-correct procedure is highlighted, press Enter to start the operation.

When you select one of the SETUP options, you see this screen:

```
        BIOS SETUP PROGRAM - WARNING INFORMATION
     (C)1990 American Megatrends Inc., All Rights Reserved


            Improper Use of Setup may Cause Problems  !!

 If System Hangs, Reboot System and Enter Setup by Pressing the <DEL> key

             Do any of the following After Entering Setup
                (i)   Alter Options to make System Work
                (ii)  Load BIOS Setup Defaults



          Hit <ESC> to Stop now, any other Key to Continue
```
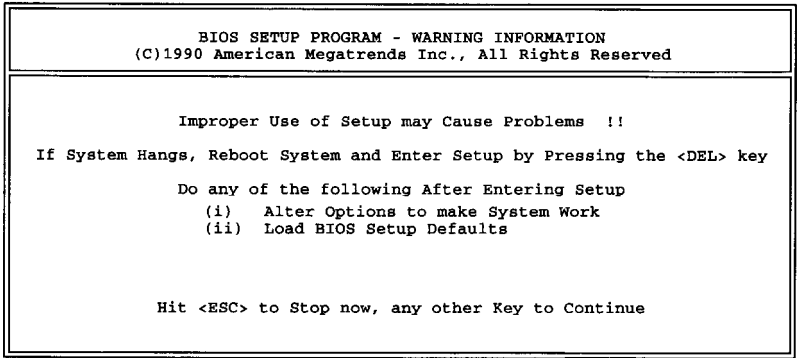
Press any key to continue, or press Esc to exit the Setup program.

Changing the Settings

At the bottom of each Setup screen, you see a list of the keys you can use to select options on that screen. Their functions are described in the following table. (Each screen lists the keys available; use only the keys listed for that screen.)

Setup function keys

Key(s)	Function
Esc	Cancels the current screen and returns to the previous menu
↑↓ ← →	Move between options on the screen
PgUp or PgDn	Change the value of an option on a SETUP screen

Setup function keys

Key(s)	Function
F1	Displays help information about the option currently selected
F2 or F3	Reverses the color of the screen
F5	Automatically changes all settings to their original values before changes were made
F6	Automatically changes all settings to their BIOS default values
F10	Save the current values and exit

Automatically Configuring Your System

You can use the AUTO CONFIGURATION WITH BIOS DEFAULTS option to automatically configure your system to the factory default settings. When you select this option, the program asks you to confirm that you want to load the defaults.

Saving Your Selections

The changes you make in the Setup program are temporary until you save them. This is important to remember in case you change any settings by mistake and want to return to your previous settings.

Whenever you want to save your new settings, select the WRITE TO CMOS AND EXIT option. The program asks you to confirm that you want to save the new settings and exit. Press Y and Enter. The system restarts with the new configuration settings.

You can also exit the Setup program without saving the new
selections to CMOS RAM. Select the DO NOT WRITE TO CMOS AND
EXIT option. The program asks you if you want to quit without
saving the current settings. Press Y and Enter. The system restarts
with the previous configuration settings.

Changing the Standard CMOS Setup

When you select the STANDARD CMOS SETUP option from the
main menu, you see this screen:

```
                BIOS SETUP PROGRAM - STANDARD CMOS SETUP
            (C)1990 American Megatrends Inc., All Rights Reserved

Date (mn/date/year) : Sun, Feb 14 1993          Base Memory  :   640 KB
Time (hour/min/sec) : 15 : 35 : 00              Ext. Memory  :  7424 KB
Daylight saving     : Disabled         Cyln  Head  WPcom LZone Sect  Size
Hard disk C: type   : 47 - USER TYPE   988   10     0     0    17    82 MB
Hard disk D: type   : Not Installed
Floppy drive A:     : 1.44 MB, 3¹/₂"
Floppy drive B:     : Not Installed
Primary display     : VGA/PGA/EGA           Sun Mon Tue Wed Thu Fri Sat
Keyboard            : Installed
                                             31   1   2   3   4   5   6

                                              7   8   9  10  11  12  13

                                             14  15  16  17  18  19  20
  Month : Jan, Feb,.....Dec
  Date  : 01, 02, 03,...31                    21  22  23  24  25  26  27
  Year  : 1901, 1902,...2099
                                             28   1   2   3   4   5   6

                                              7   8   9  10  11  12  13
 ESC:Exit ↓→↑←:Select F2/F3:Color PU/PD:Modify
```

Press ↑, ↓, ←, or→   to move to the option you want to change.
The Setup program displays information about each option as you
highlight it. Use PgUp or PgDn to change the value of an option.
Press Esc to return to the main menu.

The options on the STANDARD CMOS SETUP screen are described in the following table. Note that the Setup program displays the possible settings for each option at the bottom of the screen when the option is highlighted.

STANDARD CMOS SETUP options

Option	Function
Date	Sets the current system date in mm/dd/yy format
Time	Sets the current system time
Daylight saving	Enables or disables daylight savings
Hard disk C: type	Identifies the hard disk drive installed in the computer; this setting is accurate for the factory-installed hard disk; do not change it
Hard disk D: type	Always set to Not Installed
Floppy drive A:	Identifies the diskette drive, which is 1.44MB, 3½ inch; do not change this setting
Floppy drive B:	Set to Not Installed (unless you install an optional external diskette drive)
Primary display	Identifies the LCD display
Keyboard	Tells the system whether or not to test the keyboard during system setup

Changing the Advanced CMOS Setup

when you select the ADVANCED CMOS SETUP option from the main menu, you see this screen:

```
                    BIOS SETUP PROGRAM - ADVANCED CMOS SETUP
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Typematic Rate Programming  : Disabled │ Non-cacheable Block 1 Addr : 000000h
Typematic Rate Delay (msec) : 250      │ Non-cacheable Block 2 Size : Disabled
Typematic Rate (Chars/Sec)  : 30       │ Non-cacheable Block 2 Addr : 000000h
PS/2 Mouse Support Option   : Disabled │
Above 1 MB Memory Test      : Disabled │
Memory Test Tick Sound      : Disabled │
Hit <DEL> Message Display   : Enabled  │
Hard Disk Type 47 Data Area : DOS 1KB  │
Wait For <F1> If Any Error  : Disabled │
System Boot Up Num Lock     : Off      │
Floppy Drive Seek At Boot   : Disabled │
System Boot Up Sequence     : C:, A:   │
Password Checking Option    : Disabled │
Video BIOS Shadow E000,64K  : Disabled │
LCD Contrast Enhancement    : Disabled │
Full Height Cursor          : Disabled │
Internal cache memory       : Enabled  │
Non-cacheable Block 1 Size  : Disabled │

  ESC:Exit  ↓→↑←:Sel  (Ctrl)Pu/Pd:Modify  F1:Help  F2/F3:Color
  F5:Old Values    F6:BIOS Setup Defaults
```

> **Note**
> This screen shows the BIOS default settings.

Press ↑, ↓, ←, or→   to select the option you want to change. When an option is highlighted, you can press F1 to display information about the option, including the possible settings. Use PgUp or PgDn to change the value of an option. Press Esc to return to the main menu.

The options on the ADVANCED CMOS SETUP screen are described in the following table. If you want help with a particular option, move the highlight to the option and press F1.

ADVANCED CMOS SETUP options

Option	Function
Typematic Rate Programming	Enables or disables programming of the typematic rate; if enabled, you can change the next two options on the screen
Typematic Rate Delay	Sets the delay period between the time you press a key and the time the character appears on the screen (in milliseconds); the higher the number, the longer the delay; the default is 500 msec, or 1/2 second
Typematic Rate	Sets the rate at which a character repeats when you hold down a key; the higher the number, the faster the repeat rate; the default is 24 characters per second
PS/2 Mouse Support Option	Enables or disables PS/2-type mouse support for the EXT KB port; always enable this option when you connect a pointing device to the EXT KB port
Above 1 MB Memory Test	Enables or disables testing of memory above 1 MB during system startup; disabling this option speeds up the startup process
Memory Test Tick Sound	Enables or disables an audible ticking sound as memory is tested during system startup
Hit <Del> Message Display	Enables or disables the message that prompts you to run the Setup program; if you disable this message, you will not see Hit <Del>, If you want to run Setup; you can still start the Setup program by pressing Delete during the memory test
Hard Disk Type 47 Data Area	Identifies where the hard disk drive parameters table is stored; it is not necessary to change this setting
Wait For <F1> If Any Error	Enables or disables the message that prompts you to press F1 to run Setup when an error occurs
System Boot Up Num Lock	Turns the Num Lock function either On or Off whenever the system starts up
Floppy Drive Seek At Boot	Enables or disables checking the diskette drive for COMMAND.COM during system startup; enable this option if you plan to start the computer from drive A

Option	Function
System Boot Up Sequence	Specifies the order in which the computer checks the drives when looking for the operating system; the default (C:, A:) loads the operating system from drive C; if you want to load the operating system from diskette, change this setting to A:, C:
Password Checking Option	Enables or disables password security; select Always to enable password checking whenever the computer is turned on or reset; select Setup to enable password checking only when you start the Setup program; if you enable this option, you then select the CHANGE PASSWORD option to specify your password
Video BIOS Shadow E000,64K	Enables or disables shadow RAM for the video BIOS; if you enable this feature, the system copies the contents of its video BIOS into RAM so it can perform certain operations faster
LCD Contrast Enhancement	Enables or disables the LCD contrast enhancement feature; to enable this feature, you can specify foreground, background, or both
Full Height Cursor	Enables or disables a full height cursor; the normal cursor is an underscore _; the full height cursor is a rectangle █
Internal cache memory	Enables or disables the 1 KB internal memory cache built into the microprocessor; when the cache is enabled, the system performs most efficiently
Non-cacheable Block 1 Size	Enables or disables a non-cache block of memory; your computer automatically caches all system memory unless you enable a non-cache block of memory
Non-cacheable Block 1 Addr	Displays the starting address of the non-cache block of memory
Non-cacheable Block 2 Size	Enables or disables a non-cache block of memory; your computer automatically caches all system memory unless you enable a non-cache block of memory
Non-cacheable Block 2 Addr	Displays the starting address of the non-cache block of memory

Changing the Advanced Chipset Setup

These configuration settings include the power management
functions that allow you to conserve battery power.

When you select the ADVANCED CHIPSET SETUP option from the
main menu, you see this screen:
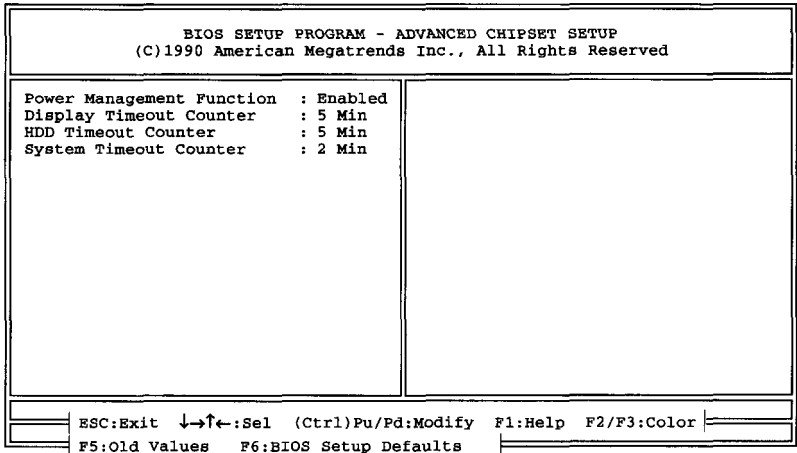
```
              BIOS SETUP PROGRAM - ADVANCED CHIPSET SETUP
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 Power Management Function  : Enabled
 Display Timeout Counter    : 5 Min
 HDD Timeout Counter        : 5 Min
 System Timeout Counter     : 2 Min










   ESC:Exit  ↓→↑←:Sel  (Ctrl)Pu/Pd:Modify  F1:Help  F2/F3:Color
   F5:Old Values   F6:BIOS Setup Defaults
```

Press ↑, ↓, ←, or → to select the option you want to change. When
an option is highlighted, you can press F1 to display information
about the option including the possible settings. Use PgUp or
PgDn to change the value of an option. Press Esc to return to the
main menu.

The options on the ADVANCED CHIPSET SETUP screen are described in the following table. You can display the possible settings for each option when the option is highlighted and you press the F1 key.

ADVANCED CHIPSET SETUP options

Option	Function
Power Management Function	Enables or disables the power management functions; if enabled, you can set the next three counters
Display Timeout Counter	Enables or disables a timeout period for the LCD display; if enabled, the computer goes into Suspend mode when there is no activity on the LCD screen for the specified period of time
HDD Timeout Counter	Enables or disables a timeout period for the hard disk drive; if enabled, the computer goes into Suspend mode when the hard disk drive is not accessed for the specified period of time
System Timeout Counter	Enables or disables a timeout period for the system; if enabled, the computer goes into Suspend mode when the system is not accessed for the specified period of time

Highlight the option you want to change and press F1 to see what timeout periods are available. If you do not use the keyboard for the specified amount of time, the computer turns off the LCD screen, hard disk drive, or the entire system to save battery power. The next time you press a key, the system comes back on. It's a good idea to always press the Shift key when you want to resume activity on the computer.

Changing the Password

If you enable the Password Checking option on the ADVANCED CMOS SETUP screen, you use the CHANGE PASSWORD option to specify the password.

> **Caution**
> If you do set a password, be sure it is easy to remember, If you forget your password, you will have to call the Epson Connection for assistance.

When you select the CHANGE PASSWORD option, you see the following prompt:

Enter CURRENT Password:

Type the current password. (When you enable a password for the first time, the current password is AMI.) You see the following prompt

Enter NEW password:

Type your password using up to six characters. To protect your password, the screen does not display what you type. After typing the password, press Enter. Then you see the following prompt:

Re-Enter NEW Password:

Type the same password again and press Enter. (This confirms your password for the system.) The program displays the following message

NEW Password Installed

Press Esc to return to the main menu screen. Highlight WRITE TO CMOS AND EXIT and press Enter.

Now, you must enter the password each time you start or reset the computer and/or before the Setup program will start. (See Chapter 2 for information about using the password you have defined.)

Hard Disk Utility

You need to select this option only if you are having serious problems with your hard disk, such as not being able to access it. This option provides utilities that allow you to perform a low-level (or physical) format of your hard disk. Do not confuse this procedure with the logical format performed by your operating system. The physical formatting of a hard disk is a separate step that is usually done at the factory by the disk manufacturer.

Caution
Physically formatting a hard disk erases any data it contains. Be sure to backup any data on your hard disk before you format it. If you are unsure whether formatting is necessary, contact your Authorized Epson Servicer or call the Epson Connection (1-800-922-8911) for assistance.

In addition to destroying all the data on the hard disk, formatting removes any partitions and logical formatting defined on the disk by your operating system. After you physically format a hard disk, you need to logically format the disk again using your operating system.

When you select the HARD DISK UTILITY from the main Setup menu, you see this screen:

```
                    BIOS SETUP PROGRAM - HARD DISK UTILITY
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                                 Cyln  Head  WPcom LZone Sect  Size (MB)
  Hard Disk C: Type : 47=USER TYPE  988   10    0     0    17    82
  Hard Disk D: Type : Not Installed


  Hard Disk Type can be changed from the STANDARD CMOS SETUP option in Main Menu



                              Hard Disk Format
                              Auto Interleave
                              Media Analysis



            ESC:Exit      ↓→↑←:Sel     F2/F3:Color
```

The three options listed on the bottom half of the screen are hard disk diagnostic tests. These tests are destructive in that they destroy data on the hard disk. Therefore, if possible, be sure to back up any data on your hard disk before performing these tests.

Hard Disk Format

The hard disk in your computer has already been formatted for you. You need to-reformat this hard disk only if you have a serious problem with the drive. However, before formatting a disk with data on it, try every other recovery procedure described in your operating system manuals. Then, if possible, backup all the data on the disk before you begin.

You must still partition and format the hard disk for the operating system after performing this low-level format. See your operating system manuals for instructions.

> **Caution**
> The hard disk format procedure destroys any data on your hard
> disk.

Select the Hard Disk Format option only when you need to
perform a low-level format of the hard disk. You see this screen:

```
              Hard Disk Format


 Disk Drive (C/D)        ?   C
 Disk Drive Type         ?   47
 Interleave (1-16)       ?   3
 Mark Bad Tracks (Y/N)   ?
 Proceed (Y/N)           ?
```

The Mark Bad Tracks option allows you to specify the bad
tracks on the hard disk. If you do not enter a bad track list before
you format the disk, the format program analyzes the surface of
the hard disk to determine the bad tracks.

Auto Interleave

This option is provided for service personnel only. You should
never select this option. Using it incorrectly could damage the
drive.

Media Analysis

This test identifies the bad tracks on the hard disk by analyzing the
surface of the disk to find them. You should not select this option
unless advised to do so by an authorized Epson representative.

> **Caution**
> The Media Analysis test destroys any data on your hard disk.

Chapter 6
Using the VGA Utilities

Your hard disk drive contains special VGA (video graphics array) drivers and utilities for your computer's built-in VGA controller. This chapter describes how to install and use these drivers and utilities.

Note

You need to install the drivers only if you plan to use an external VGA or SVGA monitor. Your LCD screen, which provides a VGA resolution of 640 x 480 with 32 shades of gray, does not require a driver.

Because software programs can run on different types of display adapters with different types of monitors, the VGA drivers identify your display adapter and monitor for the software. These drivers are files your software uses to communicate with your display adapter and monitor.

A utility is a program that supports the processes of a computer. The VGACONF utility allows you to change the system's default graphic configuration and enhance your system operation by setting various video modes.

The ActionNote's built-in VGA adapter is 100% compatible with IBM® VGA. This adapter allows you to use the computer with Epson VGA monitors, other brands of VGA monitors, and VGA-compatible, multifrequency monitors that use analog input. The drivers and utilities described in this chapter work with any of these monitors.

Standard VGA monitors display resolutions up to 640 x 480, and you do not need to install any drivers for an external monitor to operate properly with your application programs at this resolution. However, the display drivers provide resolutions up to 800 x 600 in 16 colors for Windows applications.

To obtain drivers for other applications, call the Epson Connection.

Note

These drivers and utilities are designed for systems running MS-DOS. If you are using another operating system, see the documentation that came with it for information about the VGA drivers you can use.

If you are displaying data simultaneously on both the LCD and an external monitor, the screens will default to a resolution of 640 x 480 regardless of what drivers are loaded. (This is because the LCD supports 640 x 480 only,) To display in a resolution of 800x 600, make sure you are displaying on the external monitor only.

You can control where data is displayed using the VGACONF utility described later in this chapter.

Microsoft Windows, Version 3.1

The Microsoft Windows drivers support a resolution of 800 x 600 with 16 colors.

To install the drivers, follow these steps:

1. Log onto the Windows directory on your hard disk.

2. At the command prompt, type SETUP and press Enter.

3. At the System information screen, select Display and press Enter.

4. From the Display menu, select Other **(Requires** disk
   provided by a hardware manufacturer) and
   press Enter.

5. The program prompts you to insert your display driver diskette
   into drive A.

6. Replace A: \ with C: \VGAUTILS\ as the pathname and press
   Enter. The program displays a list of drivers and their
   associated resolutions. For example:

   Cirrus Logic VGA 800x600 (16 colors)

7. Select the display driver you want and press Enter.

8. Complete the Windows Setup.

Using the VGACONF Utility Program

Your hard disk drive includes the utility program, VGACONF.
This program is located in the VGAUTILS directory.

This utility allows you to change your system's default graphic
configuration. Follow these steps to run VGACONF:

1. Log onto the C:\ VGAUTILS directory.

2. Type VGACONF and press Enter. You see this main menu:

```
┌─ MAIN MENU ══════════════════════════════╗
║                                           ║
║                                           ║
║   Display Status   Display current user options ║
║   Select Option    Select user option     ║
║   Standby Timer    Standby timer control   ║
║   Quit             Quit and return to DOS  ║
║                                           ║
║                                           ║
╚═══════════════════════════════════════════╝
```

Use ↑, ↓, ←, or→┤ to highlight the selection you want and press Enter. The sections below explain each option on the main menu.

Viewing the Display Status

The Display Status option displays the current settings. For example:

```
┌Display Status════════════════════════════════════════════════════════╗
║  Reverse video is set to enable text and disable graphics             ║
║  Bold font is disabled                                                ║
║  Contrast enhancement is set to automap                               ║
║  Expanded mode is enabled                                             ║
║  Vertical position is set to center unexpanded modes                  ║
║  Display type is set to panel                                         ║
║  16 bit ram access is enabled                                         ║
║  Font load is inhibited                                               ║
║  Full height cursor is disabled                                       ║
║  RGB weighting is set to 5:9:2                                         ║
║  Timer is set to enable stand-by mode timer for no CPU video access   ║
║  ( Power save timer =  4 to  6 minutes )                              ║
╚═══════════════════════════════════════════════════════════════════════╝
```

Press any key to return to the main menu.

Changing Settings with Select Option

Select **Option** allows you to change the current settings. You see this screen:

```
┌ SELECT OPTION ════════════════════════════════════════════════════════╗
║  Reverse               Reverse text and graphics control               ║
║  Bold                  Bold font mode                                  ║
║  Contrast enhancement  Map color to black and white                    ║
║  Expand                Expansion control                               ║
║  Vertical Position     Vertical position of non-expanded modes         ║
║  Display               Display device selection                        ║
║  Bus Width             Select bus width                                ║
║  Inhibit Font          Inhibit automatic font load when switching display║
║  Cursor                Full height cursor control                      ║
║  Rgb                   Change RGB weighting                            ║
╚═══════════════════════════════════════════════════════════════════════╝
```

Highlight the option you want to change and press Enter.
You see a submenu of the available selections. Use ↑, ↓, ←, or →
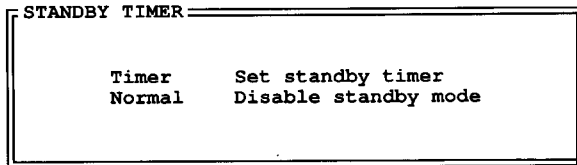to highlight the desired setting and press Esc to return to the
SELECT OPTION menu.

Some options are designed for a specific display mode: CRT,
SimulSCAN, or panel. CRT mode refers to a VGA monitor
connected to the VIDEO port; SimulSCAN refers to both the LCD
screen and a VGA monitor; panel refers to the LCD screen. The
following table shows the display modes available for each option.

VGACONF display modes

Option	Display mode
Reverse	SimulSCAN, panel
Bold	Panel
Contrast enhancement	Panel
Expand	SimulSCAN, panel
Vertical position	Panel
Display	CRT, SimulSCAN, panel
Bus width	CRT, SimulSCAN, panel
Inhibit font	CRT, SimulSCAN, panel
Cursor	Panel
RGB	Panel

Setting the Standby Timer

Standby Timer allows you to set a timeout period for the LCD display panel if the Display option is set to PANEL. When you select Standby Timer you see this menu:

```
┌─ STANDBY TIMER ════════════════════════════╗
│                                            ║
│      Timer     Set standby timer           ║
│      Normal    Disable standby mode        ║
│                                            ║
│                                            ║
└────────────────────────────────────────────╝
```

Select Timer to set a timeout period, or select Normal to disable standby mode. When you select Timer, you see these prompts:

```
Standby Time (minutes) :
Time-out on (K)eyboard activity or (M) emery
access (K/M) :
```

Enter the number of minutes to wait before entering standby mode and press Enter. Then enter K or M to indicate the type of activity. If you enter K, the LCD panel will enter standby mode if there is no keyboard activity for the specified number of minutes. If you enter M, the LCD panel will enter standby mode if video memory is not accessed for the specified number of minutes. Press PgDn to initiate the timer.

The standby mode initiated by the VGACONF utility does not work in Windows. You may prefer to use the power management features available through Setup.

Select Quit to exit the VGACONF program and return to the operating system prompt.

Using VGACONF From the Command Line

To quickly change one or more VGA configuration settings, you can access VGACONF from the command line with option parameters. At the command prompt, enter the VGACONF command in the following format:

VGACONF   [options]

In place of the *options* parameter, substitute one or more of the following option names, separated by spaces.

VGACONF command options

Option name	Function
–? or -H	Display the help screen
- S	Display status information
- N	Disable standby mode
-K=xx	Set standby timer for keyboard to xx minutes
-M=xx	Set standby timer for memory access to xx minutes
ETDG	Enable text and disable graphics reverse video mode
NOREVERSE	Disable text and graphics reverse video
REVERSE	Enable text and graphics reverse video
DTEG	Disable text and enable graphics reverse video
BOLD	Enable bold mode
NOBOLD	Disable bold mode
ATTREMUL	Disable Automap
NOATTREMUL	Enable Automap
BKGND	Enable background enhancement
FRGND	Enable foreground enhancement
BKFRGND	Enable background and foregound enhancement
EXPAND	Enable expand mode

VGACONF command options (continued)

Option name	Function
NOEXPAND	Disable expand mode
CENTER	Center the screen on the panel
TOP	Align the screen on the top of the panel
BOTTOM	Align the screen on the bottom of the panel
PANEL	Switch the display to the panel
CRT	Switch the display to the CRT (monitor)
SIMUL	Use the panel and the CRT simultaneously
16BIT	Enable 16-bit operations
NO16BIT	Force 8-bit operations
INHFONT	Inhibit font loading when switching display
NOI	Allow font loading when switching display
FULLHGT	Select full height cursor
NOFULLHGT	Select normal cursor
W259	Select RGB weighting 2:5:9
W529	Select RGB weighting 5:2:9
W295	Select RGB weighting 2:9:5
W592	Select RGB weighting 5:9:2
W925	Select RGB weighting 9:2:5
W952	Select RGB weighting 9:5:2

You can abbreviate any of the VGACONF options by typing only the first three characters of the option name. The following examples show sample VGACONF commands:

```
VGACONF SIMUL
VGACONF SIM
VGACONF PANEL NOATTREMUL NOBOLD NOEXPAND
VGACONF PAN NOA NOB NOE
VGACONF -S
VGACONF -M=4
```

Appendix A

Troubleshooting

You probably won't encounter any difficulties as you setup and use your ActionNote. If anything out of the ordinary happens, refer to this appendix for help. It provides you with the following problem-solving sections:

❏ The computer won't start

❏ Battery problems

❏ AC adapter problems

❏ The LCD screen is blank

❏ The external monitor screen is blank

❏ The computer locks up

❏ Password problems

❏ Diskette problems

❏ Diskette drive problems

❏ Hard disk problems

❏ Software problems

❏ Printer problems

❏ Memory module problems

❏ Trackball or pointing device problems

❏ External keyboard problems

❏ Numeric coprocessor problems

❏ CMOS battery problems.

If the suggestions here do not solve the problem, perform the steps below to identify your system and make a note of any error messages your computer displays. Then contact your Authorized Epson Servicer or call the Epson Connection at 1-800-922-8911.

Identifying Your System

When you request technical assistance, be ready to provide the serial number of your computer, its ROM BIOS version number, its configuration (including the types of disk drives and options), and the names and version numbers of any software programs you are using.

You can find the serial number on the underside of the computer. If you are able to use your computer, follow these steps to obtain information about your configuration, as well as the version numbers of your system BIOS and MS-DOS:

1. Turn on your computer or press Ctrl Alt Delete to restart it.

2. As the computer performs its power-on diagnostics, it displays the version number of your system BIOS as part of the copyright information. Write down the number.

3. Write down any information about your setup shown on the configuration screen that may help in identifying the problem.

4. After the MS-DOS prompt appears, type VER and press Enter to display the MS-DOS version number. Write it down.

Error Messages

Your computer's built-in memory (ROM) contains a series of
diagnostic programs, called power-on diagnostics, which your
computer runs automatically every time you turn it on. These
programs check internal devices such as ROM, RAM, the timer,
the keyboard controller, and the hard disk drive.

When the diagnostics test RAM, you see the total amount of
memory currently installed in your system. If the computer finds
an error, it displays an error message on the screen, Write down
the error message and give it to the person who is helping you
when you report the problem.

If the error is serious, the computer cancels further checking and
halts system initialization. The error message remains on the
screen and the computer locks up. If this happens, contact your
Authorized Epson Servicer as soon as possible to report this
information and the error message.

The Computer Won't Start

If your computer does not start when you press the power button,
try the following:

1. Check the power light. If it is on, the computer is on and you
   should follow the steps under "The LCD Screen is Blank later
   in this appendix. If the light is not on, go to step 2.

2. Press the power button to turn off the computer. If you are
   using the battery pack, remove it and reinstall it. If you are
   using the AC adapter, disconnect it and then reconnect it.
   Then turn the power on again.

3. If the computer still does not start, the problem is probably
   caused by the power source; see "Battery Problems" or "AC
   Adapter Problems," below.

Battery Problems

If you have trouble running the computer from the battery pack, follow the steps in this section to find the problem. (Be sure to read Chapter 3 for information on the battery.)

1. Check the low battery light. If it is blinking, the battery is low and you need to recharge it. See Chapter 3 for instructions.

2. If you think the battery is not providing any power, it may not be installed properly. Try removing and reinstalling it, according to the instructions in Chapter 3. Make sure the battery cover is closed securely.

3. If you have a second battery that is fully charged, use it to replace the one in the computer. If you replace the battery pack and the computer works properly, then you need to recharge the other battery.

4. If you replace the battery pack and the computer does not work properly, the new battery may not be fully charged. Recharge this battery until it reaches its maximum capacity.

5. If the power light still does not come on, connect the AC adapter to the computer and plug the adapter into an electrical outlet. Turn on the computer and see if it works using the AC adapter.

   If the computer works using the AC adapter, you may need to check your battery pack. If the computer does not work with the AC adapter, see "AC Adapter Problems."

6. If you have not used a battery in a long time (three months or more), you may need to recharge it.

7. If you find that over time the battery is losing its charge in less and less time, it may be reaching the end of its life. You may need to replace it with a new battery pack.

AC Adapter Problems

If the computer does not work properly with the AC adapter, check the power light. If it is on, the AC adapter is working and supplying power to the computer. If it is not on, follow these steps to find the problem:

1. Remove any diskette from the diskette drive and turn off the computer. Disconnect the AC adapter and then reconnect it. Then turn the computer back on. If the power light is still off, go to step 2.

2. Check the connections: make sure the AC adapter cable is securely connected to the computer and that the power cable is properly connected to both the AC adapter and an electrical outlet.

3. Check the green LED on the AC adapter and make sure it is on. If it's not, go to step 4.

4. If the connections are good, then check the electrical outlet to make sure it is supplying power. (For example, plug a portable lamp into the socket and turn it on.) If the outlet is working and the connections are secure, there may be something wrong with your adapter.

Caution
Use only the AC adapter (model number AP-3S25) supplied with the computer.

The LCD Screen Is Blank

If the computer starts up but no image appears on the LCD screen, follow these steps to solve the problem:

1. Use the brightness and contrast controls to adjust the screen display.

2. To save power, you may have set a time-out period for the LCD screen in the Setup program or with the VGACONF utility. This turns off the screen automatically after a specified period of time has elapsed with no keyboard input. Press the shift key to see if this restores the display. (See Chapter 5 for information about the power management options, and Chapter 6 for information about VGACONF.)

3. Make sure the suspend/resume switch is set to the left. The computer may just be in Suspend mode.

4. If you have connected an external monitor to your computer and you are using it, you should not have any problem displaying information on both screens at the same time. Check your VGACONF settings; see Chapter 6 for details.

The External Monitor Screen Is Blank

If you are using an external monitor and no image appears on its screen, follow these steps to solve the problem:

1. Make sure the power switches on the computer and the monitor are turned on.

2. Adjust the brightness and contrast of the monitor screen.

3. Make sure the monitor is set to the correct input. Some monitors can accept input from two sources.

4. If your LCD screen is displaying information, you may have disabled the external monitor. Check your VGACONF settings; see Chapter 6 for details.

5. Remove any diskette from drive A, and turn off the computer and the monitor. Check that the monitor's power cable is securely connected to the monitor and to an electrical outlet. Be sure the monitor cable is properly connected to both the monitor and the computer. Then turn both power switches back on.

6. If the monitor still does not work, turn off both the computer and the monitor. Then check the electrical outlet for power. Plug a portable lamp into the outlet and turn it on to see if the outlet supplies power.

7. If the outlet works and an image still does not appear on your monitor when you turn on the computer, contact your Authorized Epson Servicer.

The Computer Locks Up

If the computer locks up and does not respond to your keyboard entries, try the following:

1. Wait a few minutes to see if the computer really is disabled. Some operations take longer than others to perform. For example, a spreadsheet program takes longer to recalculate an entire spreadsheet than to record one figure. Also, programs involving many calculations can take several minutes to complete.

2. Make sure the suspend/resume switch is set to the left. The computer may just be suspended.

3. You may be able to resume activity by cancelling the current operation (if you're working in DOS). Try pressing Ctrl C or Ctrl B.

4. Try pressing NumLock. If the computer does not respond, it is probably locked up.

5. If the computer remains locked up after you've waited and tried the solutions listed above, reset it by pressing Ctrl Alt Delete.

6. If resetting does not work, you probably need to turn off the computer, wait five seconds, and turn it back on.

Password Problems

If you set a password using the Setup program, you must enter it at the times you selected in Setup: either whenever you start or reset the computer or whenever you start the Setup program. If you have trouble using your password, try the following:

1. If you type the password and then see an X, type it again and press Enter. If you type it wrong three times, the computer locks up. Press Ctrl Alt Delete to reset the computer and try again.

2. If you know the current password but you want to change it, see Chapter 5 for instructions.

3. If you have forgotten your password, call the Epson Connection for assistance.

Diskette Problems

If you have trouble accessing data on a diskette, follow these steps to identify the problem:

1. Is the diskette properly inserted in the drive? Remove the diskette from the drive and make sure it is inserted with the label facing up.

2. Are you using the right type of diskette for your drive? The 3½-inch drive in your computer can read either 720KB or 1.44MB diskettes.

3. Is the diskette write-protected? If you want to copy to a diskette, it must not be write-protected. If the write-protect switch is set, first make sure the diskette does not contain files you do not want to change or lose. Then move the switch to remove the write protection. Ordinarily, it's a good idea to leave program diskettes write-protected, but some programs don't work properly using write-protected diskettes.

4. Is the diskette formatted? A new diskette must be formatted before you can store data on it. See your operating system manual for instructions.

5. Is the diskette damaged? Use your backup copy of the diskette and repeat the operation that caused the problem. If the operation works using the copy, the original diskette is probably damaged. Discard it and use the copy.

   If you need to save the files on the original diskette, try using the COPY command to copy one file at a time.

6. Try formatting a blank diskette to determine if the diskette drive is operating properly. If you cannot format a diskette, see the following section.

Diskette Drive Problems

If you are having problems with the diskette drive, check the following:

1. If the drive does not seem to be working as it should, try performing a similar operation with a diskette in another computer's drive, if you have access to one.

2. If the drive is making loud or unusual noises, stop the current operation immediately and contact your Authorized Epson Servicer.

Hard Disk Problems

If you have problems with your hard disk drive, check the following:

1. Check the hard disk drive light. If you enter commands (such as COPY) to access the hard disk, the light should be on when the computer accesses the drive. If the light is blinking, there may be a problem with the hard disk. Contact your Authorized Epson Servicer if this occurs.

2. If you have set a time-out for the hard disk in the Setup program and it has timed out, the hard disk drive requires about 15 seconds to come back up to speed when you access it again.

3. Make sure you have formatted the hard disk correctly for MS-DOS or the operating system you are using. See the instructions in your operating system manual.

Software Problems

If you are having trouble with an application program, try the following solutions:

1. If the application program does not start, check that you are following the correct procedure for starting the program, and that it is installed correctly. If the program is stored in a directory on the hard disk drive, make sure you are working in or specifying the correct directory. If you are using a program on a diskette, make sure you have inserted the correct diskette in the correct drive.

2. Your computer can run at either high speed or low speed. While almost all programs work properly at the faster speed, some must run at the slower speed. Check your software manual to see if this is the case, and change the CPU speed if necessary. See "Changing the CPU Speed in Chapter 2 for instructions.

3. If you have entered an MS-DOS command that you want to stop, there are special key commands you can use to tell MS-DOS to stop what it is doing. These methods may also work in your application programs:

   ❏ Hold down Ctrl and press C

   ❏ Hold down Ctrl and press Break.

4. An application program can occasionally lockup the computer making it unresponsive to the keyboard, If your computer does not respond when you type on the keyboard, you can reset it. Press Ctrl Alt Delete to reset the computer.

5. If resetting the computer doesn't help, turn off your system, wait five seconds, and then turn it back on. Then you can restart your application program.

6. If none of these solutions solve your software problem, contact the software manufacturer for technical support.

Printer Problems

You can solve most printer problems by following the instructions in your printer manual. If you have just connected the printer, first check that the printer has power and is correctly connected to the computer. See Chapter 4 for instructions on connecting a printer. (The printer manual also gives instructions on cable connections.)

If you have a serial printer or if you have problems feeding paper, check the printer manual for the correct DIP switch settings. Refer to your printer documentation to see whether you need to use the MODE command (described in the MS-DOS manual) to match the serial settings.

Memory Module Problems

If you have added extra memory to your system, and that memory is not operating properly, check the following:

1. Make sure the Setup program is displaying the correct amount of memory. See Chapter 5 for instructions.

2. Did you insert the memory module correctly? See "Installing a Memory Module" in Chapter 4.

3. Have you defined the memory properly in your CONFIG.SYS file? See "Using Memory" in Chapter 2 and your MS-DOS manual for more information.

Trackball or Pointing Device Problems

If your trackball or other PS/2 compatible pointing device doesn't work properly, try these solutions:

1. Is the trackball or pointing device connected properly? Make sure you connected it to the EXT KB port or to the adapter as described in Chapter 4.

2. Did you install any necessary drivers and load them into your computer's memory? See the documentation that came with your device for instructions.

3. Did you run Setup to make sure the PS/2 Mouse Support Option is enabled? See Chapter 5 for instructions.

4. If you are still having trouble, check the documentation that came with the device for troubleshooting information or contact the manufacturer for assistance.

External Keyboard Problems

1. Make sure the external keyboard is firmly connected to the mouse/keyboard adapter, and that the adapter is firmly connected to the EXT KB port.

2. If you think there is something wrong with the keyboard, consult the dealer from whom you purchased it, or call the Epson Connection for assistance.

Numeric Coprocessor Problems

If you have installed a numeric coprocessor but it doesn't seem to be operating properly, check the documentation that came with it for troubleshooting information and for any diagnostic procedures you can perfom. Contact your Authorized Epson Servicer or call the Epson Connection if you cannot solve the problem.

Caution
Do not attempt to remove the numeric coprocessor yourself; this requires a special extraction tool, Contact your Authorized Epson Servicer for assistance.

CMOS Battery Problems

The clock chip in your computer preserves the contents of CMOS RAM even when the power is off. This battery should last more than a year before you need to replace it. When this battery's life is exhausted, you see a message similar to the following:

    System battery is dead - Replace and run Setup

Contact your Authorized Epson Servicer to install a new battery for you or call the Epson Connection for referral information,

Appendix B
Fax/Modem

The internal fax/modem that may be installed in your ActionNote computer supports the latest transfer standards and protocols and provides advanced error correction capabilities. This appendix provides basic information about the fax/modem and summarizes its built-in set of commands.

Your fax/modem also comes with BitCom communication software and WinFax LITE fax transmission software. Normally, you will use these software programs to control your fax/modem. See the BitCom and WinFax LITE software manuals for more information about how to use them.

Note
If your computer did not come with an internal fax/modem, you must have an Authorized Epson Servicer install it for you.

The following table provides specifications for the fax/modems that may be installed in your ActionNote computer:

Fax/modem specifications

	9600 fax/2400 modem		14,400 fax/14,400 modem	
Specifications	**Fax**	**Modem**	**Fax**	**Modem**
Compatibility	Group 3, Class 2, CCITT G3, V.21,V.27ter, V.29	Bell 103, 212A, CCITT V.21, V.22, V.22bis	Group 3, Class 2, CCITT G3, V.17, V.21, V27ter, V.29, T.30	Bell 103, 212A, CCITT V.21, V.22, V.22bis, V.23, V.32, V.32bis
Speed (baud)	9600, 7200, 4800, 2400, 300	2400, 1200, 300	14.4K, 9600, 7200, 4800, 2400	14.4K, 12K, 9600, 7200, 4800, 2400, 1200, 300
Command set	Class 2	Enhanced AT	Class 1 and 2	Enhanced AT
Error correction	MNP 2 to 4, V.42		MNP 2 to 4, V.42, MNP 10	
Data compression	MNP 5 V.42		MNP 5 V.42	
Dialing	Touch-tone or pulse		Touch-tone or pulse	
Serial port	COM2		COM2	

Built-in Command Set

If you are not using a telecommunications program, you can use the fax/modem's built-in command set. These commands are compatible with the Hayes® Smartmodem® series of modems.

Note

When you use a telecommunications software program like BitCom or WinFax LITE, it provides its own set of commands that control the fax/modem. You will normally use the program's commands instead of the built-in set. See your software manuals for instructions. You need the following information only if you are not using a telecommunications program.

When to Issue Built-in Commands

Your fax/modem has two operating states: command state and on-line state. The fax/modem must be in command state to receive commands from you; in on-line state, your keystrokes are passed directly to the telephone line.

The fax/modem enters the command state when you:

❏ Turn on your computer

❏ Select the Reset command (ATZn)

❏ Place a call but are unable to make a connection

❏ Exit the on-line state using the escape sequence (+++).

AT Command Summary

Command	Description
+++	Escape code
A/	Repeat last command string
A	Answer immediate (incoming call)
B0	CCITT V.22 protocol at 1200 bps
B1	Bell 103/212A protocol at 1200 bps
D	Dial; originates a call
E0	Echo off (command mode)
E1	Echo on (command mode)
H0	On hook; hangup immediately
H1	Off hook; ready to dial
I0	Returns modem's product ID code
I1	Returns modem's ROM checksum
12	Tests modem's internal memory
L3	Speaker volume high
M0	Speaker always off
M1	Speaker on until carrier is detected
M2	Speaker always on
M3	Speaker on after last digit dialed; off when carrier is detected
O0	Return on-line
O1	Return on-line and initiate equalizer retrain (2400 bps)

AT Command Summary (continued)

Command	Description
Sr?	Reads value stored in *r*
Sr=n	Sets register *r* to *n*
V0	Returns result codes as numbers
V1	Returns result codes as words
X0	Enables basic result codes (0-4)
X1	Enables extended result codes (0-5, 10)
X2	Enables extended result codes (0-6, 10)
X3	Enables extended result codes (0-5, 7, 10)
X4	Enables all result codes
Y0	Disable long space disconnect
Y1	Enable long space disconnect
Z0	Software reset; recalls user configuration O
Z1	Software reset; recalls user configuration 1
&C0	DCD signal always on
&C1	DCD signal on when carrier present
&D0	Ignore DTR signal
&D1	Returns to command mode when an on-to-off DTR transition occurs
&D2	Hangs up and returns to command mode when an on-to-off DTR transition occurs
&D3	Resets when an on-to-off DTR transition occurs
&F	Loads factory configuration settings
&G0	No guard tone in CCITT mode
&G1	550 Hz guard tone in CCITT mode
&G2	1800 Hz guard tone in CCITT mode
&P0	Pulse dial make/break ratio = 39%/61% (US.)
&P1	Pulse dial make/break ratio = 33%/67% (UK.)

Command	Description
&V	Display configuration values and dialog settings
&W0	Save storable parameters as user configuration 0
&W1	Save storable parameters as user configuration 1
&Y0	Load user configuration O on power up
&Y1	Load user configuration 1 on power up
&Zn=x	Store phone number x in location *n (n=0-3)*

Dial Modifiers

Modifier	Description
!	Hookflash (0.5 seconds)
,	Pause (2 seconds)
`	Return to command state after dialing
@	Wait for 5 seconds if silent answer
P	Pulse dialing
R	Reverse to answer mode
S	Dial stored number
T	Touchtone dialing
W	Wait 30 seconds for second dialtone

MNP Command Summary

Command	Description
\A0	Sets the MNP block size to 64 characters
\A1	Sets the MNP block size to 128 characters
\A2	Sets the MNP block size to 192 characters
\A3	Sets the MNP block size to 256 characters
\B3	Sets transmit break to 300ms
%C0	Disable data compression during MNP level 5 reliable link connection
%C1	Enable data compression during MNP level 5 reliable link connection
\G0	Disable modem port flow control
\G1	Enable modem port flow control
\J0	Disable speed adjust at serial port
\J1	Enable speed adjust to match serial port
\K1	Empty data buffers and immediately send a break to the remote system
\K3	Send a break to the remote modem in sequence with data
\K5	Send a break to the remote terminal or computer in sequence with any data received from the serial port
\N0	Set normal mode
\N1	Set direct mode
\N2	Set reliable mode
\N3	Set auto-reliable mode
\N4	Set V.42 (LAP-M) mode
\N5	Set V.42 auto-reliable mode
\N6	Set V.42/MNP reliable mode
\N7	Set V.42/MNP auto-reliable mode

MNP Command Summary (continued)

Command	Description
\O	Force a reliable link independent of whether or not the modem originated or answered the call
\Q0	Disable flow control
\Q1	Enable XON/XOFF flow control
\Q2	Enable RTS/CTS flaw control
\Q3	Enable XON/XOFF software flow control
\Q4	Enable unidirectional hardware flow control, keeping CTS off until connection is established
\Q5	Unidirectional, keep CTS off until connection established
\Q6	Kept CTS off until connection for bidirectional hardware flow control established
\S	Display on-line modem status
\T0	Inactivity timer: Disables timer
\Tn	Sets timer to number (n) up to 90 minutes
\U	Accept a reliable link request independent of whether or not the modem originated or answered the call
\ V0	Disable extended MNP and V.42 result codes
\V1	Enable extended MNP and V.42 result codes
\X0	Disable XON/XOFF pass through, but still process
\X1	Enable XON/XOFF pass through and process
\Y	Establish an MNP reliable link while already connected in direct mode
\Z	Switch to direct mode

Command	Description
&Q5	Select error correction mode To make an MNP5 connection: &Q5 plus S36 = 7 (MNP) S46 = 138 (MNP5) S48 = 128 (Fallback, no V.42) To make an MNP4 connection: &Q5 plus S36 = 7 (MNP) S46 = 133 (No compression) S48 = 128 (Fallback, no V.42)
&Q6	Normal mode
&Y0	Recall user profile 0 at power up
&Y1	Recall user profile 1 at power up
%An	Set the auto-reliable fallback character (n=0 to 127)
%C0	Disable data compression
%C1	Enable NMP5 data compression
%D0	Hang up without clearing buffer
%D1	Clear the receive buffer before hanging up
-Cn	Maximum string length (n=6 to 250, default=32)
-D0	Set dictionary size to 512 entries and one/two-way mode (BTLZ)
-D1	Set dictionary size to 1024 entries and one/two-way mode (BTLZ)
-D2	Set dictionary size to 2048 entries and one/two-way mode (BTLZ)
-D3	Set dictionary size to 4096 entries and one/two-way mode (BTLZ)
-P0	Ignore parity for special characters
-P1	Process special characters only if they have correct parity

AT Register Summary

Command	Description	Range	Unit	Default
S0	Auto-answer ring number	0-255	1 ring	000
S1	Ring counter	0-255	1 ring	000
S2	Escape code character	0-127	ASCII	043
S3	Carriage return character	0-127	ASCII	013
S4	Linefeed character	0-127	ASCII	010
S5	Backspace character	0-31,127	ASCII	008
S6	Wait time, dialing	2-255	1 sec	002
S7	Wait time, before carrier	1-255	1 sec	0. `
S8	Dial pause duration	0-255	1 sec	002
S9	Carrier response time	1-255	1/10 sec	006
S10	Carrier loss disconnect	1-255	1/10 sec	014
S11	Tone duration and spacing	10-255	1/1000 sec	095
S12	Escape guard time	0-255	1/50 sec	050
S13	Reserved	—	—	—
S14	Option register (see below)	None	—	AAH
S15	Reserved	—	—	—
S16	Self-test register	—	—	—
S17	Reserved	—	—	—
S18	Self-test timer value	—	—	—
S19	Reserved	—	—	—
S20	Reserved	—	—	—
S21	Option register (see below)	None	—	00H
S22	Option register (see below)	None	—	76H

Command	Description	Range	Unit	Default
S23	Option register (see below)	None	—	07H
S24	Reserved	—	—	—
S25	DTR delay value	0-255	1/100 sec	005
S26	RTS to CTS turnaround delay	—	—	—
S27	Option register (see below)	None	—	40H
S37	MNP modem line connect speed	—	—	—

Option *Registers*

S14 *Bit mapped configuration register*

bit 0	Unused	
bit 1	0	Command echo disabled (E0) •
	1	Command echo enabled (default E1)
bit 2	0	Result codes enabled (default Q0)
	1	Result codes disabled (Q1)
bit 3	0	Digit result codes (V0)
	1	Word result codes (default V1)
bit 4	Unused	
bit 5	0	Tone dial (T)
	1	Pulse dial (default P)
bit 6	Unused	
bit 7	0	Answer mode
	1	Originate mode (default)

S21 *Bitmapped configuration register*

bit 012	Unused	
bit 34	00	Modem ignores DTR (&D0)
	01	ON-to-OFF transition on DTR cuases the modem to go to the command state (&D1)
	10	ON-to-OFF transition on DTR causes the modem to hang up (default &D2)
	11	ON-to-OFF transition on DTR causes the modem to reset (&D3)
bit 5	0	DCD always ON (&C0)
	1	DCD tracks the actual state of the data carrier (default &C1)
bit 6	Unused	
bit 7	0	Long Space Disconnect disabled (default Y0)
	1	Long Space Disconnect enabled (Y1)

S22 Bitmapped configuration register

bit 01	00	Speaker volume low (L0)
	01	Speaker volume low (L1)
	10	Speaker volume medium (default L2)
	11	Speaker volume high (L3)
bit 23	00	Speaker disabled (M0)
	01	Speaker on until carrier detected (default M1)
	10	Speaker always on (M2)
	11	Speaker on until carrier detected but off during dialing (M3)

S22 Bitmapped *configuration register (continued)*

bit 456	000	Select basic result code set (X0)
	100	Select first extended result code set (X1)
	101	Select second extended result code set (X2)
	110	Select third extended result code set (X3)
	111	Select fourth extended result code set (default x4)
bit 7	0	Make/Break ratio is 39/61 for US (default &P0)
	1	Make/Break ratio is 33/67 for UK/HK (&P1)

S23 *Bitmapped configuration register*

bit 0	Unused	
bit 123	000	Communications rate—300 bps
	001	Communications rate—600 bps
	010	Communications rate—1200 bps
	011	Communications rate—2400 bps
	100	Communications rate—4800 bps
	101	Communications rate—9600 bps
bit 45	00	Even parity selected (AT entered in even parity)
	01	Space parity selected (AT entered in space parity)
	10	Odd parity selected (AT entered in odd parity)
	11	Mark parity selected (AT entered in mark parity)
bit 67	00	No guard tone (default &G0)
	01	550 Hz guard tone (&G2)
	10	1800 Hz guard tone (&G2)
	11	Unused

S27 *Bitmapped configuration register*

bit 012345	Unused	
bit 6	0	CCITT V.22 (1200 bps); V.21 (300 bps B0)
	1	Bell 212A (1200 bps)
bit 7	Unused	

MNP Register Summary

S36 *Negotiate failure treatment*

0	Hang up
1	Attempt direct connection
2	Reserved
3	Attempt normal connection
4	Attempt V.42bis then MNP 5 connection, if fail, hang up
5 or 7	Attempt V.42bis then V.42, then MNP 5 connection, if fail, negotiate MNP 2-4 with constant terminal speed

S46 *Protocol selection*

| 136 | Execute LAPM protocol with no BTLZ compression |
| 138 | Execute LAPM protocol with BTLZ compression |

S48 V.42 negotiation action

0	Disable the negotiation process; remote modem must be configured the same
3	Half duplex negotiation; your modem remains silent during detection
7	Enable negotiation
128	Disable negotiation; bypass the detection and negotiation phases; proceed at once with the fallback action specified in S36

S82 *Break handling; affected by \ K commands*

3	Send break immediately and save data in buffers
7	Send break immediately and ignore data in buffers
128	Break is sent in sequence with the transmitted data as \K5

Result Code Summary

Word	Number	Description
OK	0	Command executed
CONNECT	1	Connect at 300 bps
RING	2	Telephone is ringing
NO CARRIER	3	Carrier lost or not detected
ERROR	4	Command entry error
CONNECT 1200	5	Connect at 1200 bps
NO DIALTONE	6	No dial tone detected
BUSY	7	Called line was busy
NO ANSWER	8	Called line did not answer
CONNECT 2400	10	Connect at 2400 bps
CONNECT 1200/REL 4	22	MNP Class 4 Link
CONNECT 1200/REL 5	22	MNP Class 5 Link
CONNECT 2400/REL 4	23	MNP Class 4 Link
CONNECT 2400/REL 5	23	MNP Class 5 Link
CONNECT 1200/V.42	22	V.42 Link
CONNECT 2400/V.42	23	V.42 Link

Appendix C
Specifications

This appendix lists the specifications for your ActionNote. It also includes the specifications for international power cables.

Main Unit

CPU	486SLC2-50 microprocessor
System memory	4MB or 8MB; expandable to a maximum of 8MB; the first 640KB is conventional memory and 128KB is used for shadow RAM, the memory above lMB can be used as extended or expanded memory
ROM BIOS	128KB on a single one-time PROM (includes system BIOS, VGA BIOS, and the Setup program)
Numeric coprocessor	Socket for optional Cyrix 83S87-25 numeric coprocessor
Clock/ calendar	Real-time clock, calendar, and CMOS RAM for configuration; backed up by built-in clock chip
Video RAM	256KB

Controllers

Diskette drive	Built-in controller for one internal 3½-inch diskette drive; supports 1.44MB and 720KB formats
Hard disk	Built-in controller for internal hard disk drive
LCD	Built-in controller supporting standard monochrome LCD; maximum resolution of 640 *x* 480 dots, 32 shades of gray
External VGA	15-pin, D-sub, female connector for analog VGA or SVGA monitor; maximum resolution of 800 x 600 dots
Parallel	Centronics-compatible; 25-pin, D-sub, female connector; standard 8-bit parallel
Serial (2)	RS-232C, programmable, asynchronous, 9-pin, D-sub male connector
Pointing device or external keyboard	6-pin, mini-DIN connector for a PS/2-type pointing device or for the mouse/keyboard adapter (which allows you to connect both a pointing device and an external keyboard)
Speaker	Built-in ISA compatible speaker controller; internal
Modem	Internal connector for fax/modem (may or may not be installed)
Phone jack	Standard RJ-11 connector for the internal fax/modem

Keyboard

84/85 (US) keys; embedded numeric keypad and F11 and F12 keys

Mass Storage

Diskette drives

One internal, 3½-inch diskette drive; 1.44MB and 720KB formats

Hard disk drive

One internal hard disk drive

LCD Display

Monochrome: 640 x 480 dots x 32 shades of gray, 0.3 mm, high-contrast two-film; paper-white, backlit by one cooled cathode fluorescent tube (CCFT); continuous brightness and contrast controls; power-saving feature; brightness and contrast enhancement

Power Supply

AC adapter

+15.5VDC, 2.4A continuous AC adapter with international voltage input, 50/60 Hz

Battery pack

Rechargeable, internal NiCad battery pack; 8-cell, 9.6 volt, 1.7AH, 16.3W

Caution
Use only the AC adapter, optional automobile adapter, and battery designed for use with the ActionNote (AC adapter model number AP-3S25, automobile adapter A880461 and battery model number A880451).

Physical Dimensions

Height	42 mm (1.6 in.)
Width	280 mm (11.0 in.)
Depth	225 mm (8.7 in.)
Weight (with battery pack installed)	2.5 kg (5.5 lb)

Environmental Requirements

Temperature	Operating: 5° to 35° C (41° to 95° F) Non-operating: –20° to 60° C (-4° to 140° F)
Humidity	Operating: 30% to 90% (non-condensing) Non-operating: 5% to 95% (non-condensing)
Acoustical Noise	35dB @ 1 meter
Altitude	Operating: –61 to 3048 m (-200 to 10,000 feet) Non-operating: –61 to 10,668 m *(-200* to *35,000* feet)
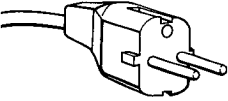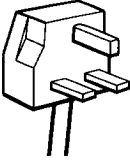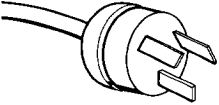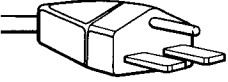
Caution
When travelling by airplane, be sure to take your computer into the passenger compartment as carry-on luggage to prevent it from being stored in an unpressurized storage area.

Power Source Requirements

120 Volt power source requirements

AC plug	Plug type	Reference standards	Power cord
	North America 125V, 10A	ANSI C73.11 NEMA 5-15-P IEC 83	UL/CSA Listed Type SJT no. 18/3AWG, or no. 16/3AWG or <HAR> 300V, 10A or 13A

240 Volt power source requirements

AC plug	Plug type	Reference standards	Power cord
	Europe 240V, 10A to 16A	CEE 7/7 IEC 83 IEC 127 HD 21	<HAR> 1.00 mm^2 300V, 10A
	UK 240V, 10A	BS 1362 BS 1363A IEC 83 IEC 127 HD 21 EN 60 320-1 ASTA mark	<HAR> 1.00 mm^2 300V, 10A
	Australia 240V, 10A	AS C112 IEC 127 HD 21	<HAR> 1.00 mm^2 300V, 10A
	North America 240V, 15A	ANSI C73.20 NEMA 6-15-P IEC 83 UL 198.6	UL/CSA Listed Type SJT No. 18/3AWG 300V, 10A

Glossary

387SX

A special-purpose CMOS integrated circuit used to assist the microprocessor chip and speed up certain kinds of mathematical calculations and graphics displays. The computer has a socket to accommodate a Cyrix 8S387 multifrequency numeric coprocessor.

486SLC

A CMOS process technology integrated circuit; the central processing unit (CPU) of your ActionNote which controls all the processing of your computer.

AC adapter

The device that converts AC voltage from a wall outlet into the proper DC voltage to power your ActionNote. The AC adapter also charges the battery pack while it is in the computer.

Address

A number or name that identifies the location of each piece of information in the computer's memory.

AUTOEXEC.BAT file

A batch file that MS-DOS executes automatically each time you turn on or reset the computer. See also *Batch file.*

Backlighting (or backlit)

The internal fluorescent illumination of the computer's LCD screen. LCD screens that are not backlit are difficult to see without an external source of light.

Batch file

A type of file that allows you to execute a series of MS-DOS commands by typing one command. Batch files are text files with the filename extension, .BAT. In a batch file, each command is entered on a separate line. When you type the filename, MS-DOS executes each command in the file in sequence. See also *AUTOEXEC.BAT file.*

Baud rate

A measure of data transmission speed. Equivalent to bits per second.

BIOS

Basic Input/Output System. Routines in ROM that handle the basic input/output functions of the operating system.

Chip

A hardware component of your system (formally known as an integrated circuit). Examples of chips include memory chips and the CPU.

Clock speed

See *CPU speed.*

CMOS

Complementary Metal-Oxide Semiconductor. A type of low power, integrated circuit (chip).

CMOS ROM

A special type of low-power memory in your ActionNote that records information about your system configuration. Unlike RAM, CMOS ROM is backed up by a battery and is not erased when you turn off the computer.

COM1

The name that MS-DOS uses to identify the primary serial port.

COM2

The name that MS-DOS uses to identify the secondary serial port.

CONFIG.SYS file

A special system file that MS-DOS executes each time you turn on or reset the computer. You use this file to customize your system by installing device drivers, setting limits for files and buffers, and specifying MS-DOS commands to be run during startup.

Control code

A command (generated by holding down Ctrl and pressing another key on the keyboard) that instructs the computer to perform a specific function.

Controller

A hardware component of your computer that manages the operation of the display, hard disk, or diskette drive.

Conventional memory

The amount of memory in the computer below lMB that is available to MS-DOS and application programs-usually 640KB. Also called base memory or main memory.

Coprocessor

An optional integrated circuit (chip) that assists the CPU in performing certain numeric calculations faster. See also 387SX.

Copy-protected program

A type of program that cannot be copied. Some copy-protected programs require you to leave the program diskette in the diskette drive while you are using it. Some also require the computer to be running at low speed instead of high speed.

CPU

Central Processing Unit. The integrated circuit (chip) responsible for integrating program instructions, performing calculations, and controlling all input and output operations.

CPU speed

The speed at which the CPU can execute commands. The ActionNote can run at high or low speed. Also called clock speed, execution speed, or operating speed.

CRT

Cathode Ray Tube. A type of video display, such as a color monitor or a TV screen.

Device driver

See *Driver.*

DIP switch

Dual In-line Package switch. A small switch on a piece of hardware, such as a printer, that controls a particular function.

Double-density

A type of diskette format. A 3½-inch, double-density diskette has a capacity of 720KB.

Drive

See Disk drive.

Driver

A program that controls a specific piece of equipment in the system. Examples of drivers include expanded memory managers, display drivers, printer drivers, and mouse drivers.

Embedded numeric keypad

See Numeric keypad.

EMS or Expanded memory

Memory that can be used by applications and programs conforming to version 4.0 of the Lotus/Intel/Microsoft (LIM) Expanded memory Specification (EMS). Expanded memory does not have addresses like conventional or extended memory.

Extended memory

Memory with addresses above lMB. Extended memory is generally not available to MS-DOS applications but can be used by some RAM disk programs, such as VDISK, and some hard disk caching programs, such as SMARTDRV. Extended memory can also be used with OS/2 and some versions of Windows.

External device

See Peripheral device.

File

A group of related pieces of information (sometimes called records or entries) stored together on a disk. Text files consist of words and sentences. Program files consist of codes, which computers use to perform instructions.

Fn

A key provided on the ActionNote keyboard to access alternate key functions for the embedded numeric keypad and the F11 and F12 keys.

Format

To prepare a new disk (or erase an old one) so that it can store information. Formatting a disk divides it into tracks and sectors and creates addressable locations on it.

Graphics

Lines, angles, curves, and other non-alphanumeric data.

High-density

A type of diskette format. A 3½-inch, high-density diskette has a capacity of 1.44MB.

Input/Output (I/O) port

See *Port.*

Integrated circuit

See Chip.

Interface

A hardware or software connection used to transmit data between equipment or programs.

KB

Kilobyte. A unit used to measure storage space in a computer's memory or on a disk. One kilobyte equals 1,024 bytes.

LCD

Liquid Crystal Display. A thin, backlit panel containing thousands of pixels that can be turned on and off individually by electric currents. Used as the main display on your computer.

LED

Light Emitting Diode. An indicator light such as those used for the ActionNote power, disk drives, and keyboard settings.

LIM EMS 4.0

Lotus/Intel/Microsoft Expanded Memory Specification version 4. A standard that enables certain applications to use more than 640KB of memory.

Math coprocessor

See *Coprocessor.*

MB

Megabyte. A unit used to measure storage space in a computer's memory or on a disk. One megabyte equals 1,048,576 bytes or 1024KB.

Megahertz

See MHz.

Memory

The area where the computer stores data. Memory contents may be permanent (ROM) or temporary (RAM). See also *ROM* and RAM.

Memory module

An optional card that adds 6MB of extended memory to your computer. (Also called an extension memory module.)

Memory-resident program

A program that remains in RAM so you can access it while another program is running.

MHz

Megahertz. A unit used to measure the oscillation frequency of a computer's internal timing clock. One megahertz is one million cycles per second.

Microprocessor

A CPU chip, such as the 486SLC. See also CPU.

Modem

MOdulator/DEModulator. A serial device that allows the computer to send and receive data over the telephone lines.

Monitor

A device that contains a screen and displays keyboard input and other information. See also *CRT.*

NiCad

Nickel-cadmium. The type of battery used by your ActionNote.

Numeric coprocessor

See *Coprocessor.*

Numeric keypad

The embedded numeric keypad in the ActionNote keyboard, which you can activate either by turning on the Num Lock function or by holding down the Fn and Shift keys.

Operating speed

See *CPU speed.*

Parallel

A way of organizing communications between two pieces of computer equipment, in which the signals that make up each character are sent simultaneously. See also *Serial.*

Parameter

A qualifier added to a command that tells the computer how to perform the command (such as what data file to use or what particular conditions to expect). For example, in the command FORMAT A:, the A: parameter tells the computer to format the diskette in drive A.

Partition

The area defined on a hard disk to run an operating system. Also, to divide a hard disk into separate logical drives.

Pathname

The list of directories the MS-DOS operating system must search through to locate a file. For example, the pathname for a file named CONTRACT.TXT that is located in the BUSINESS subdirectory is \BUSINESS\CONTRACT.TXT.

Peripheral device

An external device, such as a printer or mouse, connected to the computer.

Port

An input/output connection on a computer to which you can attach a peripheral device.

Power-on diagnostics

A set of testing routines the computer performs automatically every time you turn it on.

RAM

Random Access Memory. The portion of the computer's memory that runs programs and temporarily stores data while you work. All data stored in RAM is temporarily maintained while the computer is in Suspend mode, but erased when you turn off the computer. See also *ROM.*

Read/write head

The physical device inside a disk drive that reads and records data on the magnetic surface of a disk.

Real-time clock

A battery-powered clock in the computer that keeps track of the current time and date even when the computer's power is off.

Reset

To reload a computer's operating system so you can retry a task or begin using a different operating system. Resetting erases any information stored in RAM.

ROM

Read Only Memory. The portion of the computer's memory that contains permanent instructions and cannot be modified. Unlike RAM, ROM retains its contents even after you turn off the computer. See also RAM.

Root directory

The top-level MS-DOS directory on a diskette or hard disk. The root directory is designated by a backslash (\). All other directories are subdirectories of the root directory, or of other subdirectories.

RS-232C

A standard serial interface. The ActionNote has a connector that lets you attach an RS-232C-compatible device to your computer.

Self tests

See *Power-on diagnostics.*

Serial

A way of organizing communications between two pieces of computer equipment, in which the signals that makeup each character are sent sequentially. See also *Parallel.*

Setup

The program you run to define the configuration settings and Power Management options of your computer.

Shadow RAM

The function that copies the system BIOS and video BIOS from ROM into RAM to speed up performance.

Suspend mode

The power-saving mode your computer enters after you slide the suspend/resume switch to the right or it detects a standby timeout period specified in the Setup program.

Timeout period

An amount of time you can specify using the Setup program; if the selected device is not accessed for the specified amount of time, the computer enters Suspend mode.

VGA

Video Graphics Array. A high-resolution display adapter standard. The VGA capabilities of the ActionNote can display resolutions up to 640 x *480* on the LCD screen and up to 800 x 600 (super VGA) on an external monitor.

Write-protect

To prevent a diskette from being overwritten. When a diskette is write-protected, you cannot erase, change, or record over its contents.

Index

A

AC adapter,
    connecting, 1-7–8, 1-11
    low battery, 3-6
    problems, A-5
    recharging battery, 3-5
    specifications, C-3
    using, 3-1
Acoustical noise, C-4
Adapter,
    automobile cigarette lighter,
        Intro-3, 3-1
    mouse/keyboard, Intro-1, 4-7–8
Advanced chipset settings, 5-1,
    5-10–11
Advanced CMOS settings, 5-1,
    5-7-10
Alt key, 2-6
Altitude, C-4
Application programs,
    device drivers, 4-8
    problems, A-11–12
    VGA drivers, 6-1–2
AT command summary, B-4–6
AT register summary, B-l0–14
AT-type keyboard, 4-7
Auto interleave, 5-15
AUTOEXEC.BAT file, 4-7

B

Backing up hard disk, 2-15
Backing up VGA utilities, 2-3
Backspace key, 2-7
Backup copies, diskettes, 2-14
Basic input/output system, 5-1, C-1
Battery compartment cover, 1-6
Battery pack(s),
    disposal, 3-6
    extra, Intro-3

Battery pack(s) (continued)
    problems, A-4
    recharging, 3-5–6
    replacing, 3-2–4
    specifications, C-3
    using, 3-2–4
Battery power, saving, Intro-2, 3-8,
    5-11
Baud rate,
    fax/modem, B-2
    serial port, 4-7
BIOS, 5-1, C-1
BitCom software, 4-9, B-1
Break key, 2-7
Brightness
    control, 2-11
    switch, 1-3,2-11
Built-in command set,
    fax/modem, B-3–15
Built-in VGA adapter, 6-1

C

Caps Lock LED, 1-4
CapsLock key, 2-6
Carrying case, Intro-2
Centronics-compatible printer, 4-4
Charging battery pack, 3-5–6
Charging LED, 1-4,3-5
Clock/calendar, C-1
Clock chip, A-13, C-1
CMOS battery problems, A-14
CMOS RAM, 5-1, A-13
COM port(s), 1-6,4-2,4-5–7
Command set, fax/modem, B-3–15
Command state, fax/modem, B-13
Computer,
    care, 2-2
    locks up, A-7–8
    powering, 3-1–8

VGACONF utility (continued),
   parameters, 6-7–8
   settings, 6-4
   using, 6-3–8
Video graphics array, see VGA
VIDEO port, 1-6,4-2–3
Video RAM, C-1

W

Windows, see Microsoft Windows
WinFax LITE software, 4-9, B-1
Write-protecting, diskettes, 2-13

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