+$#KKContents

Digital HiNoteTM Ultra On-line Field Service ˇ Version 1.0:

For Help on Help, Press F1

+$#Notices

+$#Battery Information

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WARNING
There is a danger of explosion if a lithium battery is incorrectly replaced. Lithium batteries must be replaced with the same or equivalent type recommended by the manufacturer. These batteries must be disposed of according to local ordinances and regulations.

Consult your local Digital Service Center for information and proper servicing.

ATTENTION
Risque dexplosion en cas de mauvais remplacement de la batterie. Utilisez un type de batterie identique ou équivalent ŕ celui recommandé par le febricant. Mettez les batteries au rebut en suivant les instructions ou réglementations en viguer.

CAUTION
Keep small batteries away from children.

+$#Battery Disposal

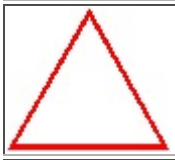
Recycle or dispose of batteries contained in this product properly, in accordance with local regulations for the battery type as marked on the battery. Prior to disposal or recycling, protect batteries against accidental short circuiting by affixing non-conductive tape across battery terminals or conductive surfaces. If the battery is not marked, or if your require other information regarding batteries, consult your nearest Digital Service Center.

+$#Real-Time Clock Battery Warning

The following information pertains to the Real-Time Clock battery, which is a coin cell lithium battery.

WARNING

Replace with Sanyo (Part Number: CR1220 only). Use of another battery might risk fire or explosion.



CAUTION

Battery might explode if mistreated. Do not recharge, disassemble, or dispose of in fire.

+$#**Setup and Configuration**

These Help topics provide information on how to configure your notebook computer using Setup. However, your notebook computer is already configured with default settings that were selected for typical notebook computer use.

If you are familiar with utility programs and their uses, refer to the appropriate sections in this help file to setup or update your notebook computer. Otherwise, carefully read and understand this help file before attempting to modify your notebook computer's configuration settings.

Setup Options

+$#Running Setup

With the notebook computer Setup program, you can select and store information about the notebook computer's hardware and software in the batterybacked memory of the CMOS RAM. This information takes effect each time the notebook computer boots and can be changed each time you run setup.

Use Setup if you need to reconfigure your notebook computer, change power management settings, or after adding or removing additional memory.

To run Setup, perform the following steps:

1. Turn on your notebook computer and wait for the completion of the power on messages.
2. Make a note of any configuration errors listed, and then press **[Fn] + [F3]** to display the Setup menu.
   Alternatively, you can press **[Fn] + [F3]** at any time while running your notebook computer and immediately enter Setup.
3. After making your changes, exit Setup by selecting the Exit option appropriate for your needs.

NOTE
If you entered Setup while running an application, you can return to the same application after exiting Setup. However, some of your changes might only take effect when you reboot.

+$#Updating Your Notebook Computer's Configuration

The following sections list Setup options you can update.
Factory default settings are listed as follows:
" Settings given in **bold** are factory defaults when the notebook computer is operating with an International AC Adapter.
" Settings given in *italics* are factory defaults when the notebook computer is operating with a battery pack only.
" Settings given in ***bold italics*** are factory defaults regardless of the power source from which the notebook computer is operating.

+$#Navigating in Setup

The following keys can be used to navigate through the Setup menus.

	Wrap around keys that move the cursor to the right and left
	Wrap around keys that move the cursor up and down
Tab	Moves the cursor between menu items
ESC	Closes the current menu
Enter	Accepts the current selection
Space bar	Selects the current option

You can also press the key that corresponds to a menu item's highlighted letter. For example, "A" for Advanced in the Power Option, or field.
You can also use your trackball where appropriate.

+$#Saving and Loading Default Settings

From Setup's Defaults menu:
" Select "Set User Default Settings" to store all current Setup options as the user default values.
" Select "Load User Default Settings" to set all Setup options to their user defined default values.
" Select "Load Factory Default Settings" to set all Setup options to their factory default values.

+$#Exiting Setup

From Setup's Exit menu:
" Select "Save" to save all Setup values and exit Setup.
" Select "Quit" to ignore the current Setup configuration and exit Setup.

+$#Power

Fields	Settings	Comments	
Power	Disabled	Use disable when you want to disable all power savings for maximum performance, such as when you are running your notebook computer with an International AC adapter or an application that requires all devices running.	

	Maximum battery life	Use maximum battery life when you want to maximize the time between battery charges.	
	Maximum performance	Use maximum performance when you want to maximize the performance of your notebook computer while still retaining some power savings for extending the life of your battery.	
	Advanced	Select advanced when you want to choose your own power saving features. Use this option only if you have a good understanding of effects your selections have on both battery life and overall performance.	
Power button	On/Off ***Suspend/ Resume***	This option enables you to configure the power button as an *On/Off* switch or a *Suspend/Resume* switch. With the notebook computer on and in *Suspend/Resume* mode, the notebook computer can always be powered off by [Fn] + [Power].	
Lid switch	Disabled - no beeps Enabled - with beeps ***Enabled - Suspend/ Resume***	This option enables you to configure the lid switch as to how you want the LCD to respond when opening and closing the LCD panel.	
Suspend beep	Enabled ***Disabled***	This option enables or disables the suspend beeps feature. If enabled, the notebook computer emits a series of warning beeps prior to switching into *Suspend* mode.	
Hard disk timer	Disabled *1 Min* 2 Min 4 Min 6 Min 8 Min **12 Min** 16 Min	Allows you to disable this feature or after a set period of hard disk drive inactivity, forces the hard disk drive into its power saving state.	
Standby timer	1 Min *2 Min* 4 Min 6 Min **8 Min** 10 Min 15 Min 20 Min	Allows you to disable this feature or after a set period of notebook computer inactivity, forces your notebook computer to switch to *Standby Mode*. *Standby Mode* shuts down power to the LCD and backlight, hard drive, diskette drive, and external devices. However, t he keyboard and trackball remains active for input.	
Suspend timer	Disabled *5 Min* 10 Min 15 Min 20 Min 30 Min 40 Min **60 Min**	Allows you to disable this feature or after a set period of notebook computer inactivity, forces the notebook computer to switch to *Suspend*.	
PCMCIA socket power	On Off ***Auto***	This option allows you to control power to a PCMCIA card during *Suspend*. If you are using any PCMCIA card, socket power should be set to *On*. This setting is necessary to preserve data and to allow the notebook computer to *Resume* on alarm. For example, with an installed FAX modem card, an *On* setting for PCMCIA socket power means you can enable Resume on Alarm and your Digital HiNote Ultra notebook then resumes, or wakes up on a modem ring. Use Auto if your card can automatically turn socket power *On* or *Off*.	

Resume on alarm	Enabled ***Disabled***	This option enables or disables the resume on alarm feature. Enabling this option forces the notebook computer to *Resume* from a *Suspend* state as a result of an internal real-time clock. Several organizational applications contain clock settings that you can set to beep you at specific times. These can activate this feature when resume on alarm is enabled.	
Resume on modem ring	Enabled ***Disabled***	This option enables or disables the resume on modem ring feature. Enabling this option forces the notebook computer to *Resume* from a *Suspend* state as a result of a modem ring. PCMCIA socket power must be on for this function to work with PCMCIA devices.	
APM support	***Enabled***	Enabling this option causes your notebook computer to wait for Microsoft's APM to request the notebook computer to *Suspend*. APM is Microsoft's Advanced Power Management program, which is part of the MS-DOS operating system. Note that it might take some time for APM to request a *Suspend*. Also note that the APM might never issue this request depending on usage or settings.	
	Disabled	Disabling this option causes the notebook computer to switch to *Suspend* based on specific timer settings without waiting for APM. If you find that your notebook computer fails to respond to power management settings, such as failing to *Suspend* after 10 minutes, set APM support to Disabled.	

$#NOTE
The set period of inactivity is measured from *On* mode.

$#NOTE

Generally, users set this timer to a time greater than the *Standby* timer. Then the notebook computer goes into *Standby* and then into *Suspend.* For example, if you select a 4 minute *Standby* timer and 15 minute *Suspend* timer, after 4 minutes of notebook computer inactivity, your notebook computer switches to *Standby*. Then after another 15 minutes of inactivity, your notebook computer switches to *Suspend Mode*.
Suspend Mode is similar to *Standby Mode* except all devices are powered down while the DRAM remains active. However, if you disable the *Standby* timer or set it to a time greater than the *Suspend* timer, then the notebook computer goes directly to *Suspend*.

+$#System

Fields	Settings	Comments
Set date	Current date	Sets your notebook computer to a specified date.
Set time	Current time	Sets your notebook computer to a specified time.
Boot sequence	***Floppy disk then hard drive*** Hard disk then floppy disk	Setting the floppy disk then hard drive option causes your notebook computer to first try to boot from the floppy disk drive and then from the hard disk drive. Setting the hard disk then floppy disk option causes your notebook computer to first try to boot from the hard disk drive and then from the floppy disk drive.

PCMCIA boot	Enabled	Enabling this option causes your notebook computer to boot from an installed PCMCIA card and then from the device set in "Boot Sequence." For example, suppose you select "Enabled" and choose floppy disk then hard drive for the boot sequence. The notebook computer then boots first from the PCMCIA card. Failing to find a PCMCIA card, it boots from the floppy disk drive. If it fails to find a diskette in the drive, it boots from the hard drive.
Disabled	Disabling this option causes your notebook computer to boot from the device set in Boot Sequence.	
Quick boot	Enabled ***Disabled***	Enabling this option speeds up your notebook computer boot sequence by skipping certain diagnostic tests. If you want to test fully your notebook computer's hardware each time it boots, disable this option.
Num lock	On ***Off***	Turns on or turns off the numeric keypad keys each time your notebook computer boots.
Trackball	***Enabled***	Setting this option to "Enabled" means your trackball is operating.
Disabled	Disable this option if you are using a serial mouse. If you are using a PS/2 mouse and find it is not responding, disable the trackball.	
+$#Device **Fields**	Settings	Comments
Serial port	***Disabled*** COM 1 (3F8h - IRQ4) COM 3 (3E8h - IRQ4)	Enables or disables onboard serial port at the specified address.
IR port	Disabled ***COM 2 (2F8h - IRQ4)*** COM 4 (2E8h - IRQ3)	Enables or disables any desired onboard IR port at the specified address.
Parallel port	Disabled ***LPT1 (378h - IRQ7)***	Enables or disables any desired onboard printer port at the specified address.
Parallel port mode	Standard	Standard - Port is used for sending information out. Use this mode when using the port to connect to a standard printer
Audio	***Enabled*** Disabled	Enables or disables the notebook computers audio feature.
Bi-directional (PS2)	Bi-directional - The port works as a PS/2 compatible mode where it can send and receive data. If you select this option, make sure that the device you are attaching supports bi-directional mode.	

Enhanced parallel port (EPP) Extended capabilities port (ECP)	EPP and ECP provide for better throughput through the port. If you use these settings your device must support EPP or ECP, respectively.	

$#NOTE
Make sure your printer supports any mode chosen other than Standard. Refer to your printer's documentation for additional information.

+$#**Security**

Fields	Settings	Comments
Set user password	Refer to User Password	This option enables you to create a password that must be entered prior to operating the notebook computer each time it boots, switches from *Standby* to *On*, or *Resumes* from a *Suspend* state.
Set supervisor password	Refer to Supervisor Password	This option enables you to create a password that must be entered prior to accessing Setup. The supervisor password can also serve as a user password where appropriate.
Modify password mode	Disabled Password on boot only Password on boot and resume ***Password on boot, Resume and Wakeup***	This option allows you to disable the password or choose when to be prompted for the password.

+$#User Password
Your notebook computer has three user password options that you can set to prevent unauthorized access to your notebook computer files. If you set a user password, you need to enter it each time your notebook computer boots, switches from **Standby** to **On**, or **Resumes** from a **Suspend** state. You set the password through the selectable menu options in Setup.
Perform the following steps to set a user password:
1. Turn on your notebook computer.
2. After POST successfully completes, press **[Fn] + [F3]** to access Setup.
The Setup main menu appears on the screen.
3. Highlight the Security Setup menu and press [Enter].
4. Highlight the Set User Password field and press [Enter].

5. Type in a one to eight character user password and press [Enter].
To confirm, type in your user password a second time and press [Enter].
6. Highlight the User Password field and press [Enter].
7. Select the appropriate option and then press [Enter].
8. Exit Setup and reboot your notebook computer.
Your notebook computer runs POST and then prompts you for the user password you set.

+$#Supervisor Password

Your notebook computer has a supervisor password option that you can set to prevent unauthorized access to Setup. If you set a supervisor password, you need to enter it each time you want to access Setup. Note that the supervisor password can also serve as a user password where appropriate. You set the password through the selectable menu options in Setup.

Perform the following steps to set a supervisor password:

1. Turn on your notebook computer.
2. After POST successfully completes, press **[Fn] + [F3]** to access Setup.
The Setup main menu appears on the screen.
3. Highlight the Security Setup menu and press [Enter].
4. Highlight the Set Supervisor Password field and press [Enter].
5. Type in a one to eight character supervisor password and press [Enter].
To confirm, type in your supervisor password a second time and press [Enter].
6. Highlight the Supervisor Password field and press [Enter].
7. Select the appropriate option and then press [Enter].
8. Exit Setup and reboot your notebook computer.
Your notebook computer runs POST and then prompts you for the supervisor password you set if attempting to access Setup.

+$#Defaults

Fields	Comments
Set user default settings	Stores all Setup options as the user default values.
Load user default settings	Sets all Setup options to their user defined default values.
Load factory default settings	Sets all Setup options to their factory default values.

+$#**Exit** **Fields**	Comments
Save	Saves all Setup values and exits Setup.
Quit	Ignores all Setup values and exits Setup.

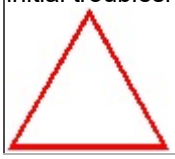
Troubleshooting

If Your Notebook Computer Beeps

+$#If Your Notebook Computer Beeps

Your notebook computer might sometimes beep during normal operation to notify you of certain operating conditions. Check the following table for information about these beeps. If the beeps do not match those given in this table, refer to Beep Codes for further information.

Beep Sequence	Possible Cause / Action

Notebook computer sounds a sequence of two beeps every 3 seconds.	***Notebook computer entered a "Low Battery" condition.*** Connect the notebook computer to an external power source and charge the battery.
Notebook computer sounds a sequence of three beeps every second.	***Notebook computer entered a "Battery Very Low" condition.*** Save your work and immediately connect the notebook computer to an external power source. If an external power source is not available, save your work and then allow your notebook computer to enter its Suspend mode.
Notebook computer sounds a sequence of five beeps.	***A "CPU Extreme Temperature Alert" condition was detected.*** Your notebook computer will automatically shutdown after it beeps. Remove your notebook computer from the extreme temperature area.
+$#Initial Troubleshooting If there are no beeps and you are experiencing a problem with your notebook computer, follow these initial troubleshooting steps in the order given. 	CAUTION Be sure to click on each step and carefully perform the procedures described. If you do not fully complete the initial troubleshooting procedures as described, you might not detect the true cause of a notebook computer malfunction.
✓ Check Power ✓ Reboot the Notebook Computer ✓ Check For Messages ✓ Reset the Notebook Computer ✓ Check PCMCIA Card Installation ✓ Check Device Drivers ✓ Run Setup ✓ Check Troubleshooting Tables	
$#**Check Power** If you are running your notebook computer using the Battery Pack: " Check that your Battery Pack is charged by connecting your International AC Adapter. " If the amber light goes on, your Battery Pack is charging. You can either use your notebook computer while the Battery Pack is charging or wait until it is fully charged. " If the amber light fails to go on, check that your International AC Adapter is properly connected and the connections are secure. If you are running your notebook computer using the International AC Adapter: " Check that your International AC Adapter is properly connected and the connections are secure.	

$#**Reboot the Notebook Computer**

Press [Ctrl] + [Alt] + [Del] to soft boot your notebook computer.
If your notebook computer fails to boot, turn it off, wait a few seconds, and then turn it back on.

$#Check For Messages

When you reboot, does your notebook computer display any error messages?

" **If yes,**

Refer to the appropriate troubleshooting Help topic to interpret the message and correct the error.

" **If no,**

Proceed to the next step.

$#Reset the Notebook Computer

Turn your notebook computer over and press the reset button.

$#Check PCMCIA Card Installation

When installing PCMCIA cards did your notebook computer sound two short beeps?

" **If yes,**

The PCMCIA card was installed correctly.

" **If no,**

Refer to the PCMCIA troubleshooting table provided later in this help file.

$#Check Device Drivers

Check that all the necessary video, printer, and application device drivers are properly installed.
Refer to the documentation that was provided with the applicable device or application for information on device drivers and how to install them.

$#Run Setup

Run Setup to ensure that your notebook computer is appropriately configured.
Refer to Setup and Configuration.

$#Check Troubleshooting Tables

Check the troubleshooting tables in this help file. When using these tables, match your notebook computers problem to the problem listed in the tables.

+$#Notebook Computer Troubleshooting

	WARNING Depending on your locality, your notebook computers Battery Pack might be considered hazardous waste. Make sure you follow any state or local statute to properly dispose of an old Battery Pack.
Problem	Possible Cause / Action
No response when the notebook computer is turned on while running on battery power.	***Battery pack is discharged.*** Charge the Battery Pack. ***Defective Battery Pack.***

	Replace Battery Pack. ***Notebook computer hung.*** Press **[Fn] + Power** button. Then, press the **Power** button. If the notebook computer is still hung, press the **Reset** button and then press the **Power** button. ***Main logic board failure.*** Replace main logic board.
No response when the notebook computer is turned on while connected to an external power source.	***International AC or Auto Adapter is not connected properly.*** Make sure either adapter is properly connected to the notebook computer and to the AC power source. ***No power from the external power source, such as a wall outlet.*** Check the external power source by connecting another device to it. If the external power source still does not work, try another power source. ***Main logic board failure.*** Replace main logic board.
Application software or files failing to load with an out of memory error message.	***Insufficient notebook computer memory.*** Install a larger memory module. If you are not using PCMCIA cards, comment out the driver statements in your CONFIG.SYS file. This will prevent the drivers from being loaded into memory.
Notebook computer operates incorrectly after installing an optional memory module.	***Memory module installed incorrectly.*** Remove memory module and reinstall. ***Memory module failed.*** Replace memory module.
Notebook computer does not boot from the hard disk drive.	***Operating system soft-ware is not installed on the hard disk drive.*** Install the appropriate operating system. ***Hard disk drive is not correctly formatted or the requested partition does not exist.*** Format the hard disk drive or partition the hard disk drive using the backup version of the operating system software you created. ***There is no software on the requested partition.*** Install operating software on the requested partition.

	"Drive A" is selected from the "First Boot" option in Setup. Remove the diskette from drive A.
Notebook computer does not boot from the diskette drive.	***"Drive C" is selected from the "First Boot" option in Setup.*** Enable Drive A via Setup. Press **[Fn] + [F3]** to enter Setup. ***Diskette does not contain system files.*** Insert a diskette with the correct system files. ***Diskette drive is empty.*** Insert a diskette that contains an operating system. ***Diskette is worn or damaged.*** Try another diskette. ***Diskette drive failed.*** Replace diskette drive.
Target diskette drive cannot read or write information.	***Diskette is not formatted.*** Format the diskette. ***Diskette is worn or damaged.*** Try another diskette. ***Diskette is write-protected.*** Slide the write-protect switch so the hole is not visible. ***Diskette drive is empty.*** Insert a diskette. ***Diskette drive failed.*** Replace diskette drive.
No response to keyboard commands.	***Notebook computer is hung.*** Press the Reset button and then press the Power button. ***Keyboard is defective.*** Replace the keyboard.
Notebook computer locks up.	***User or Supervisor password forgotten.*** Clear the password.
Cursor moves erratically across the LCD.	***Trackball needs cleaning.*** Remove and clean the trackball.

+$#PCMCIA Troubleshooting Problem	Possible Cause / Action
PCMCIA card does not work.	***Notebook computer not turned on.*** Turn notebook computer on. ***Card improperly inserted.*** Insert the card label-side up. ***Card not supported.*** Card is inserted properly if you hear two short beeps. If not, refer to specific card troubleshooting later in this section. ***Device drivers missing or improperly installed.***

	Use a supported PCMCIA card. ***Expansion Dock improperly installed onto the notebook computer.*** Reinstall the Expansion Dock.
Modem card does not work from CardView (single beep).	***Card improperly configured or configuration conflict.*** Select the configuration option in CardView and run the configure modem option. Select configure and the insertion slot number of the faulty card. Change the COM port setting so there is no conflict.
Modem card does not work in CardSoft (double beep).	***Communications software improperly configured.*** Refer to your communications documentation and change the settings of the software to match those shown in the CardSoft display.
Network card does not work (single beep).	***Configuration error or card not supported.*** If you are in CardView, exit Windows for Workgroups and enter at the DOS prompt: *cardinfo /v* Locate the latest error message in the list and then write down the entire message that appears after the = sign. Return to CardView and select the network card configuration menu in CardView. Change the value of the item causing the latest error.
Network card does not work despite a double beep, which indicates that the network card was properly recognized and configured by your notebook computer.	***Network incompatibility.*** Further adjustments might need to be made depending on your network configuration. Refer to your network documentation. Contact your network service representative.
SRAM card does not work (single beep).	***Missing device driver(s).*** Make sure the mtdsram.exe driver is properly installed on your hard disk drive. If not, reinstall it using your backup diskettes. Make sure the sramdrv.exe or memdrv.exe drivers are properly installed on your hard disk drive. Check your CONFIG.SYS file and make sure the SRAMDRV.EXE or MEMDRV.EXE device driver statements appear and are in the

	correct order.
SRAM card does not work (double beep).	***incorrect drive letter assigned.*** Remove SRAM card and boot your notebook computer. Note the drive letter information displayed on the LCD. Insert the SRAM card and then type the correct drive letter at the DOS prompt. ***SRAM card not formatted.*** Insert the SRAM card and then type: *format [drive letter]:* to format the SRAM card.
ATA card does not work (single beep).	***Card not supported.*** Try a supported ATA card.
ATA card does not work (double beep).	***Missing device driver(s)*** Check your CONFIG.SYS file and make sure the atadrv.exe or memdrv.exe device driver statement appears and is in the correct order.
+$#LCD Troubleshooting 	WARNING High voltages exist inside the Liquid Crystal Display (LCD) enclosure (notebook computers screen display). To prevent electrical shock, do not open the LCD enclosure.
Problem	Possible Cause / Action
Power is on, but there is no LCD display.	***LCD brightness and contrast incorrectly set.*** Adjust the LCD brightness and contrast using the slide levers next to the LCD display (CT models have only a brightness lever). ***Notebook computer switched to** Suspend.* Press the **Power** button. ***Notebook computer LCD Timer Setting went into effect.*** Press a key on the keyboard or move the trackball cursor. ***Notebook computer running in CRT mode.*** Press **[Fn] + [F4]** until the LCD screen displays. ***Screen saver utility installed.*** Press a keyboard key or click on the trackball.
+$#Audio and IR Troubleshooting Problem	Possible Cause / Action

Sound is not working.	***Audio volume low.*** Press **[Fn] + [up arrow]** to increase the audio volume. ***Sound is disabled.*** Press **[Fn] + [F7]** to turn the audio on. ***Audio disabled in Setup Menu.*** Run Setup, change to Enable and reboot computer. ***Drivers not loaded.*** In the Windows Main Menu, select the Control Panel icon. Select the Drivers icon and ensure the ESS Sound chip is selected. If not, select the Add button and choose the ESS Sound chip. **Note:** There is no audio in Models 433 and CS433.
File does not transfer.	***IR is disabled in Setup.*** Run Setup, change to Enable and reboot computer. ***TranXit not setup correctly.*** From TranXit, select Setup from the Connection pulldown menu. Select Infrared then Port COM2. ***Your IR port is over a meter (3 ft) away from the desktop computers IR accessory.*** Position your notebook within a meter (3 ft) or less. ***IR port is not on the same plane with your desktop computers IR accessory.*** Make sure your notebook computers IR port is in a direct line with your target computers IR accessory. Refer to your target computers IR documentation for more information. ***Remote system not properly set up.*** Verify the setup on the remote system.
	Description/Solution

+$#Notebook Computer Messages

This section lists the Digital HiNote Ultra messages you might see or hear when you turn on power. The computer messages are grouped as follows:

" POST and Boot Messages
" Beep Codes

+$#POST and Boot Messages

The POST displays two types of messages to alert you to errors in hardware, software, and firmware or to

provide operating information about your notebook computer. Messages with a prefix FATAL alert you to a hardware failure. Following a FATAL message, the notebook computer emits a series of audible beeps and then locks up. Messages with a prefix WARNING alert you to a configuration error. Following a WARNING message, the prompt `Press F1 to continue` is displayed. Your notebook computer will stop until `F1` is pressed.

The following table lists a general grouping of notebook computer messages. In addition, each message is accompanied by text describing the message and in most cases, a recommended solution to the problem.

NOTE

Italics indicate variable parts of a message such as memory addresses, hexadecimal values, and so on. These messages can differ at each occurrence.

Fatal Message	
`Faulty refresh circuit`	Replace main logic board.
`ROM checksum incorrect`	Replace main logic board.
`CMOS RAM test failed`	Replace main logic board.
`DMA controller failed`	Replace main logic board.
`Interrupt controller failed`	Replace main logic board.
`Faulty DMA page registers`	A walking bit read/write of the 16 DMA controller page registers starting at location 80h failed.

`RAM error at location nnnn`
`Wrote:yy`
`Read:zz`
	Reset the notebook computer by removing the ac adapter plug, the main battery, and the computer backup battery. Then reconnect the ac adapter cord and batteries. If the problem still exists, replace the main logic board.

`Clock not ticking correctly`	The real time clock is not ticking
`No bootable floppy drive 0 installed`	Power down the notebook computer and check all connections. Run Setup. Replace the diskette drive.
`Keyboard controller failure`	Check the keyboard connection. If the connection is secure, the keyboard or keyboard controller might have failed. Replace the main logic board.
`Keyboard failure`	Ensure that none of the keys are stuck down then check the keyboard connection. If the connection is secure, the keyboard or keyboard controller might have failed. Replace the keyboard and/or main logic board.
`CMOS failure - Run Setup`	Run Setup.
`CMOS checksum invalid - run Setup`	Run Setup.
`No interrupts from timer 0`	Replace main logic board.
`Unexpected amount of memory - Run Setup`	Run Setup.

Time/Date corrupt - Run Setup	Run Setup and set the correct time and date.
Floppy disk track 0 failed	Ensure that the floppy dock is correctly connected. Replace diskette drive.
Floppy controller failed	Ensure that the floppy dock is correctly connected. Replace main logic board.
Hard disk error	Reset the notebook computer by removing the ac adapter plug, the main battery, and the computer backup battery. Then reconnect the ac adapter cord and batteries. Run Setup and load factory defaults. If the problem still exists, replace the hard disk drive.
Hard disk failure	Reset the notebook computer by removing the ac adapter plug, the main battery, and the computer backup battery. Then reconnect the ac adapter cord and batteries. Run Setup and load factory defaults. If the problem still exists, replace the hard disk drive.
Hard disk not configured - Run Setup	Run Setup and ensure that the hard disk drive is present.
Hard disk controller error	Replace main logic board.
Hard disk controller failure	Run Setup. Replace main logic board.
+$#**Beep Codes** If the POST finds an error and cannot display a message, the computer's speaker emits a series of beeps to indicate the error. For example, a refresh circuitry is faulty beep code emits a short (S), short (S), short (S), pause (P), short (S), long (L), short (S), and pause (P) sequence. The following table lists the beep codes when the notebook computer encounters a fatal error. Fatal errors (errors that lock up your computer) are generally the result of a failed main logic board or some other add-on component (DIMM, BIOS, notebook computer battery, etc. **Beep Code**	Error Message
S,S,S,P,S,S,L,P	DMA page registers are faulty.
S,S,S,P,S,L,S,P	Faulty refresh circuit (see POST and boot messages)
S,S,S,P,S,L,L,P	ROM check sum incorrect (see POST and boot messages)
S,S,S,P,L,S,S,P	CMOS RAM test failed (see POST and boot messages)
S,S,S,P,L,S.L,P	DMA controller faulty (see POST and boot messages)
S,S,S,P,L.L.S,P	Interrupt controller failed (see POST and boot messages)
S,S,S,P,L,L,L,P	Keyboard or keyboard controller failed

S.S,L,P,S,S,S,P	Video controller failed
S,S,L,P,S,S,L,P	No memory found or memory controller failed
Parts List See also: Field Replaceable Unit (FRU) Descriptions	FRU
30-44812-02	Lithium battery, RTC
30-43477-01	Digital HiNote Ultra car adapter (FR-PCP8H-AA)
30-44811-01	Digital HiNote Ultra auxiliary battery
30-43478-02	Digital HiNote Ultra battery pack (Li-Ion) (FR-PCP8H-AB)
30-43492-01	Digital HiNote Ultra international AC/DC adapter (FR-PCP8H-AD)
30-44434-01	Digital HiNote Ultra AC/DC adapter with US/American power cord (FR-PCP8H-AR)
30-44434-02	Digital HiNote Ultra AC/DC adapter with Central Europe power cord(FR-PCP8H-AN)
30-44434-03	Digital HiNote Ultra AC/DC adapter with UK/British power cord (FR-PCP8H-AH)
30-44434-05	Digital HiNote Ultra AC/DC adapter with Israeli/Hebrew power cord (FR-PCP8H-AM)
30-44434-06	Digital HiNote Ultra AC/DC adapter with Japanese power cord (FR-PCP8H-AI)
30-44434-07	Digital HiNote Ultra AC/DC adapter with Australia/NZ power cord (FR-PCP8H-AO)
30-43480-01	Digital HiNote Ultra floppy dock
30-43481-02	Digital HiNote Ultra card dock (FR-PCP8E-AA)
30-44203-02	Digital HiNote Ultra multi-media dock (FR-PCP8E-AB)
30-43059-01	Digital HiNote Ultra travel case (FR-PCP7X-AA)
30-43482-01	Digital HiNote Ultra leather carrying case (FR-PCP8X-AB)
30-43479-01	Digital HiNote Ultra battery charger with international AC adapter (FR-PCP8H-AC)
30-44433-01	Digital HiNote Ultra battery charger with US/American power cord (FR-PCP8H-AP)

30-44433-02	Digital HiNote Ultra battery charger with Central European power cord (FR-PCP8H-AX)
30-44433-03	Digital HiNote Ultra battery charger with UK/British power cord (FR-PCP8H-AE)
30-44433-05	Digital HiNote Ultra battery charger with Israeli/Hebrew power cord (FR-PCP8H-AT)
30-44433-06	Digital HiNote Ultra battery charger with Japanese power cord (FR-PCP8H-AJ)
30-44433-07	Digital HiNote Ultra battery charger with Australian/NZ power cord (FR-PCP8H-AZ)
30-44794-01	9.5-inch mono 433 display
30-44795-01	9.5-inch DSTN CS433 color display
30-44796-01	9.5-inch DSTN CS450 color display
30-44797-01	9.5-inch TFT CT450 color display
30-44798-01	9.5-inch TFT CT475 color display
30-44799-01	LCD bezel assembly mono 433
30-44800-01	LCD bezel assembly DSTN CS433
30-44801-01	LCD bezel assembly DSTN CS450
30-44802-01	LCD bezel assembly TFT CT450
30-44803-01	LCD bezel assembly TFT CT475
30-43066-03	340 MB HDD w/kit (FR-PCP8R-AA)
30-44823-03	510 MB HDD w/kit (FR-PCP8R-AB)
30-43107-02	HDD, 170 MB, 2.5 x 0.5
30-43065-02	HDD, 240 MB, 2.5 x 0.5
30-43066-02	HDD, 340 MB, 2.5 x 0.5
30-44823-02	HDD, 510 MB, 2.5 x 0.5
30-43513-01	Motherboard 33 MHz, mono, 512 KB VRAM, 4 MB RAM
30-43515-01	Motherboard 33 MHz, DSTN color, 512 KB VRAM, 4 MB RAM
30-43516-01	Motherboard 50 MHz, DSTN color, 1 MB VRAM, 4 MB RAM
30-43517-01	Motherboard 75 MHz, TFT color, 1 MB VRAM, 4 MB RAM
30-44198-01	CPU module, 486, 33 MHz
30-44199-01	CPU module, 486, 50 MHz

30-44200-01	CPU module, 486, 75 MHz
30-44204-01	CPU module, Pentium, 75 MHz
30-44534-01	SIMM/CPU cover assembly
30-44808-01	I/O connector assembly
30-44809-01	FPC, PCMCIA & connector assembly
30-44810-01	Microphone assembly
30-43483-01	Trackball/speaker assembly, 16 mm
30-43484-01	DC/DC converter
30-43488-01	Keyboard deck assy
30-43074-01	1.44 MB FDD
30-43511-01	Inverter board, mono
30-43512-01	Inverter board, DSTN
30-44178-01	Inverter board, TFT
30-44201-01	Status LCD
17-04105-01	Power cord, US/America
17-04105-02	Power cord, Central European
17-04105-03	Power cord, UK/British
17-04105-05	Power cord, Israeli/Hebrew
17-04105-06	Power cord, Japanese
17-04105-07	Power cord, Australian/NZ
30-43448-01	US/American keyboard
30-43449-01	Japanese/Katakana keyboard
30-43450-01	UK/British keyboard
30-43451-01	German/Austrian keyboard
30-43452-01	French keyboard
30-43453-01	Italian keyboard
30-43454-01	Swiss keyboard
30-43455-01	Belgian keyboard
30-43456-01	Spanish National keyboard
30-43457-01	Danish keyboard
30-43458-01	Norwegian keyboard
30-43459-01	Swedish/Finnish keyboard
30-43460-01	Portuguese keyboard
30-43461-01	Turkish keyboard
30-43462-01	Israeli/Hebrew keyboard
30-43463-01	French Canadian keyboard
30-43464-01	Latin American keyboard
30-43485-01	Display housing assembly (mono)
30-43486-01	Display housing assembly (DSTN color)
30-43487-01	Display housing assembly (TFT color)
30-44804-01	Hinge kit, mono

30-44805-01	Hinge kit, color
30-44806-01	Housing, lower main, mono
30-44807-01	Housing, lower main, color
30-43489-01	Digital HiNote Ultra 4 MB memory (FR-PCP8M-AA)
30-43490-01	Digital HiNote Ultra 8 MB memory (FR-PCP8M-AB)
30-43491-01	Digital HiNote Ultra 16 MB memory (FR-PCP8M-AC)

+$#Field Replaceable Unit (FRU) Descriptions

The following Help topics describe the FRUs that make up your Digital HiNote Ultra notebook computer.

NOTE

Replacement is the only service procedure described for any of the listed FRUs.

Auxiliary Battery
Battery Pack
Hard Disk Drive
Keyboard
LCD Display
Main Logic Board
PCMCIA Interface
Real-Time Clock (RTC)
SIMM
Trackball

CAUTION

Before changing any memory or address location, refer to the documentation supplied with the optional device or software application and make sure adequate information is available. If not, contact the option or software manufacturer for further information.

$#Auxiliary Battery

The auxiliary battery enables your notebook computer to hold information in DRAM for up to two weeks.

$#Battery Pack

This FRU is your notebook computers main power source (when not using the International AC Adapter).

$#Hard Disk Drive

This FRU contains the factory installed software and serves as the notebook computers main data storage device.

$#Keyboard

This FRU serves as the notebook computer's main keyboard.

$#LCD Display

This FRU serves as the notebook computers main display.

$#Main Logic Board

Holds the SIMM socket and provides the necessary electrical and I/O connections for the CPU, trackball, PCMCIA interface, battery pack, floppy dock, hard disk drive, and keyboard.

$#PCMCIA Interface

The notebook computer contains two PCMCIA slots for high-speed data. You can use two Type I or II PCMCIA cards or one Type III PCMCIA card. Mono versions accept one Type I, II, or III PCMCIA card. All slots accept 3.3 V dc or 5 Vdc PCMCIA cards.

$#Real-Time Clock (RTC)

The RTC contains a lithium battery that provides power for non-volatile CMOS configuration information when power is removed from the notebook computer.

$#SIMM

There is one SIMM socket on the main logic board. This socket is capable of holding a 4 MB, 8 MB, or 16 MB SIMM.

$#Trackball

This FRU serves as the notebook computers main pointing device.

+$#Device Mapping

These Help topics list mapping and address information related to computer memory and various main logic board devices (keyboard controller, interrupt controller, DMA controller, etc.).

Your computer's memory and address locations are allocated at the factory to operate within a standard PC environment. However, due to the number of optional devices that are available, sometimes memory and address locations need to be changed. For example, some network PCMCIA cards require a specific memory location. If that location is already allocated, a memory conflict results and the PCMCIA card will not operate as expected. Note that some memory, I/O and interrupt locations can be changed using the BIOS Setup utility. Refer to Setup and Configuration for additional information.

DMA Channel Assignment
I/O Address Map
Memory Map
Notebook Computer Interrupt Levels

+$#DMA Channel Assignment **Channel**	Controller	Function
0	1	Not used
1	1	Sound
2	1	Diskette controller
3	1	ECP (optional)
4	2	Cascade DMA
5	2	Not used
6	2	Not used
7	2	Not used

+$#I/O Address Map **Range (hexadecimal)**	Function
000 - 00F	DMA controller A
020 - 021	Master interrupt controller
024	Index register
026	Data register
040 - 043	Interval timer
060 - 06F	Keyboard controller
070 - 07F	Real-time clock (RTC), NMI
080 - 08F	DMA page register
0A0 - 0A1	Slave interrupt controller
0C0 - 0CF	DMA controller B
0F0	Clear math coprocessor
0F1	Reset math coprocessor
0F8 - 0FF	Math coprocessor
1F0 - 1F7	IDE controller
2E8 - 2EF	COM4
2F8 - 2FF	COM2
378 - 37A	LPT1
3B0 - 3DF	Mono VGA registers
3C0 - 3DF	Mono VGA
3D0 - 3DF	Color VGA registers
3E8 - 3EF	COM 3
3F0 - 3F7	Diskette controller
3F6 - 3F7	IDE controller (alt status, device address)
3F8 - 3FF	COM1
46E8	VGA enable register

+$#Memory Map **Address Range**	Function	Notes
0h to 9FFFFh	Base memory	640 KB
A0000h to BFFFFh	Video RAM	128 KB
C0000h to CBFFFh	VGA BIOS	32 KB
CC000h to CFFFFh	Plug and Play BIOS	16 KB
D0000h to DFFFFh	PCMCIA card access	64 KB
E0000h to EFFFFh	BIOS extension ROM (AT bus usage)	64 KB
F0000h to FFFFFh	Notebook computer BIOS	64 KB

+$#Notebook Computer Interrupt Levels **Priority**	Interrupt Controller	Interrupt Number	Interrupt Source
1	1	IRQ0	Timer tick
2	1	IRQ1	Keyboard controller
1	IRQ2	Cascade interrupt	
3	2	IRQ8	Real-time clock (RTC)
4	2	IRQ9	VGA BIOS
5	2	IRQ10	Available
6	2	IRQ11	Available
7	2	IRQ12	Mouse interrupt
8	2	IRQ13	Math coprocessor
9	2	IRQ14	Hard disk drive
10	2	IRQ15	Reserved
11	1	IRQ3	Infrared = COM2
12	1	IRQ4	COM1, COM3
13	1	IRQ5	Sound
14	1	IRQ6	Diskette drive
15	1	IRQ7	LPT1

+$#Power Consumption The following table lists the power requirements for the Digital HiNote Ultra International AC adapter. **International AC Adapter** **Rated** **Voltage Range**	100 V ac - 120 V ac	220 V ac - 240 V ac

Maximum Range	90 V ac - 135 V ac	180 V ac - 264 V ac
Rated Input Current	0.4 A	0.2 A
Operating Frequency Range	47 Hz - 63 Hz	47 Hz - 63 Hz
Output Rating	11 V dc @ 2.4 A	

Interface Connectors

These Help topics provide information about the external connectors on the Digital HiNote Ultra. External connectors include:

+$#Floppy Dock or Expansion Dock

Pin	Signal	Pin	Signal
1	Docked	29	GND
2	Index#	30	AEN
3	DSHCHG	31	BINT#
4	DRVSEL	32	ADS#
5	GND	33	GND
6	DIR	34	BD0
7	RDATA#	35	BD1
8	FDDVCC	36	GND
9	DENSEL	37	VBAT
10	ESS	38	BD2
11	GND	39	BD3
12	DIR	40	GND
13	WDATA#	41	GND
14	FDDVCC	42	BD4
15	GND	43	BD5
16	STEP	44	VBAT
17	TRKO#	45	GND
18	WGATE#	46	BD6
19	FDDVCC	47	BD7
20	WRTPRT#	48	GND
21	MOTORON	49	VBAT
22	GND	50	BDEV#
23	MEDIA#	51	BADS#
24	SPKR	52	GND
25	RING	53	GND
26	SMI	54	FS1XCLK
27	PCMACT	55	RESET#
28	RESERVE	56	3.3VIN

	Signal

+$#Keyboard or Mouse Port

The keyboard or mouse connector consists of a 6-pin mini-DIN

connector. **Pin**		
1	Data	
2	No connection	
3	Ground	
4	+5 V dc (fused)	
5	Clock	
6	No connection	
+$#Parallel Printer Port The parallel printer port connector provides an interface to a printer or other parallel device. **DB25 Pin**	Signal	Function
1	STB-R	Strobe
2	PRTD0	Printer data bit 0
3	PRTD1	Printer data bit 1
4	PRTD2	Printer data bit 2
5	PRTD3	Printer data bit 3
6	PRTD4	Printer data bit 4
7	PRTD5	Printer data bit 5
8	PRTD6	Printer data bit 6
9	PRTD7	Printer data bit 7
10	ACK	Acknowledge
11	BUSY	Busy
12	PE	Paper end
13	SLCT	Select
14	AUTOFDXT	Auto feed
15	ERR	Error
16	INIT	Initialize printer
17	SLCTIN	Select input
18-25	GND	Ground
+$#Serial Port The serial port connector consists of a 9-pin D-subminiature connector. The baud rates supported by the notebook computer for the serial ports are 300, 1 200, 2 400, 4 800, 9 600, 19 200, and 38 400. **DB9 Pin**	Signal	Function
1	DCD	Data carrier detect

2	RXD	Receive data
3	TXD	Transmit data
4	DTR	Data terminal ready
5	GND	Ground
6	DSR	Data set ready
7	RTS	Request to send
8	CTS	Clear to send
9	RI	Ring indicator

+$#Video Port The video port connector is an industry-standard 15-pin D-type video connector. **Pin #**	Function
1	Red video
2	Green video
3	Blue video
4	Not connected
5	Digital ground
6	Red return(ground)
7	Green return (ground)
8	Blue return (ground)
9	Composite sync
10	Digital ground
11	Not connected
12	Not connected
13	Horizontal sync
14	Vertical sync
15	Not connected

About This Guide

Abbreviations

+$#KAbbreviations

BIOS Basic Input/Output System
DRAM Dynamic Random Access Memory
FDC Floppy Disk Controller
IDE Integrated Drive Electronics (internal hard disk drive interface)
ISA Industry Standard Architecture
LCD Liquid Crystal Display
MS-DOS Microsoft Disk Operating System
PCMCIA Personal Computer Memory Card International Association
POST Power-On Self Test
ROM Read Only Memory
RTC Real-Time Clock
VGA Video Graphics Array
Windows Microsoft Windows application software

+$#Conventions

Convention Example	Description
`c:\windows>`	Monospaced text indicates information that your computer or software displays.
`[drive letter]`	Italic monospaced text indicates a filename or directory path you must enter.
[Enter]	Square brackets surrounding text represents a keyboard key.
[Ctrl]+[Alt]+[Del]	A + sign indicates that the keys shown should be pressed simultaneously.
1 234 567	Spaces are used in large numbers instead of commas.
Color Information of special importance in this Help file has been indicated by the use of color. Blue **NOTE** , dark red **WARNING** and red **CAUTION** labels identify this material. If your system is equipped with a monochrome display, these labels will appear in **BOLD**. You may find colored text difficult to read if you have made changes to your Windows screen colors. This problem can be solved by using one of the pre-defined color sets available through the Windows Control Panel while you are viewing this Help file.	

+$#K Related Documentation

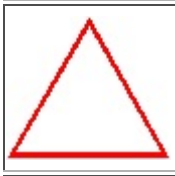
Digital HiNote Ultra Quick Setup Guide
- ER-P70WW-IA (English)
- ER-P70WW-IG (German)
- ER-P70WW-II (Italian)
- ER-P70WW-IS (Spanish)
- ER-P70WW-IP (French)

Digital HiNote Ultra User's Guide (also available in on-line form)
- ER-P70WW-UA (English)
- ER-P70WW-UG (German)
- ER-P70WW-UI (Italian)
- ER-P70WW-US (Spanish)
- ER-P70WW-UP (French)

Using Your Digital HiNote Ultra (on-line Help file)
On-line CardView documentation

+$#Service Procedures

+$#Before You Begin

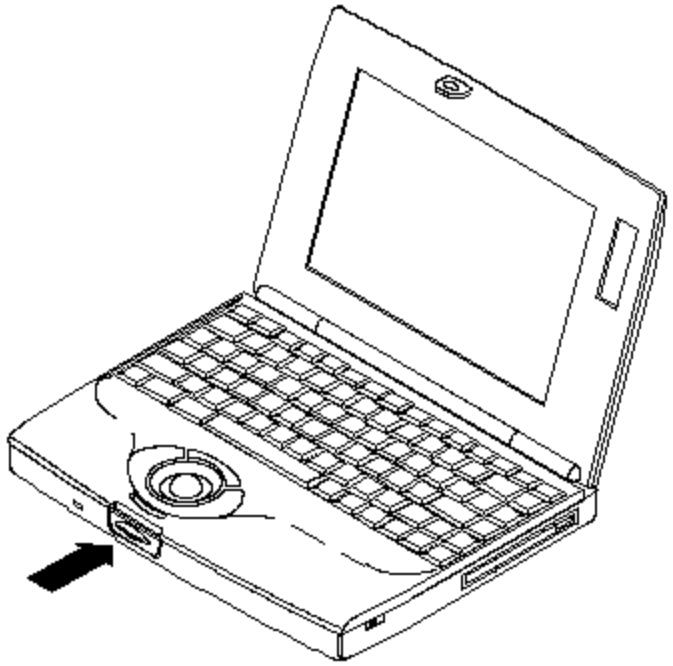
	WARNING Risk of electrical shock. Failure to disconnect the source of power before opening the notebook computer can result in personal injury.
	CAUTION Do not touch any electrical component unless you are properly grounded. Proper grounding can be established by wearing a grounded wrist strap or by touching an exposed metal part of the notebook computer. A static discharge from your fingers can result in permanent damage to electronic components.

1. Turn off power to the notebook computer. Disconnect AC adapter, if plugged in.
2. If necessary, turn off power and disconnect all external devices from the notebook computer.

+$#Recommended Tools

- Magnetized, #1 tipped Philips screwdriver
- Magnetized, #0 tipped Philips screwdriver
- Small flat tipped screwdriver
- Fine point, long reach Tweezers

+$#Raising the LCD Display

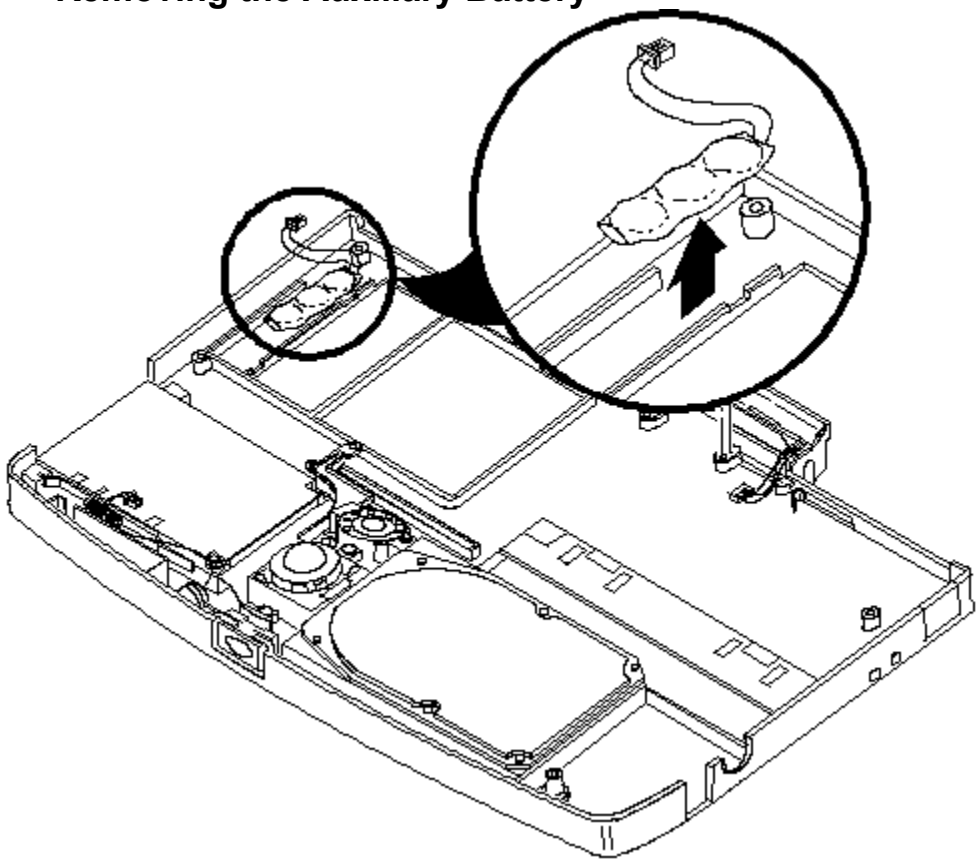


1. Press in on the button at the front of the notebook computer.
2. Lift up on the LCD display.

+$#KKKKK After Removing and Installing FRUs

1. If necessary, connect all external devices to the notebook computer.
2. Restore power to the notebook computer.

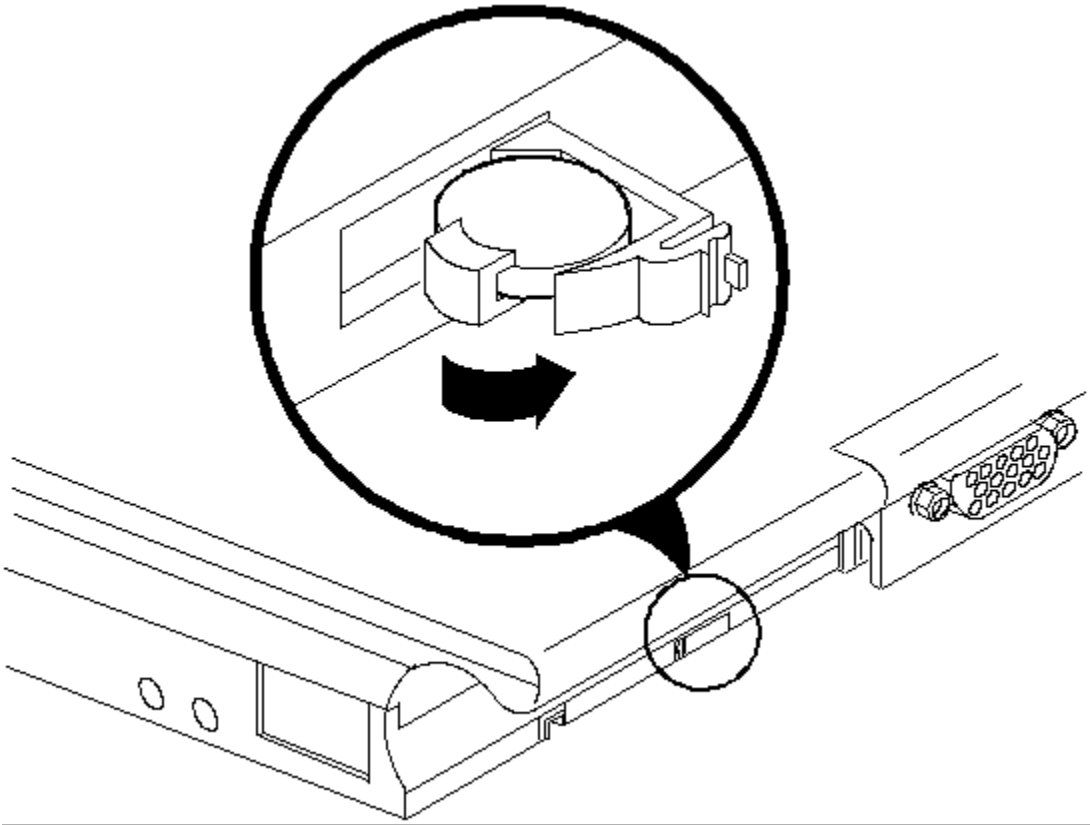
+$#K Removing the Auxiliary Battery



1. Release and raise the LCD display.
2. Remove the keyboard.

3. Remove the keyboard deck.
4. Remove the DC-to-DC/external mouse/keyboard connector assembly.
5. Remove the main logic board.
6. Remove the auxiliary battery.

+$#Removing the Computer Battery (RTC)

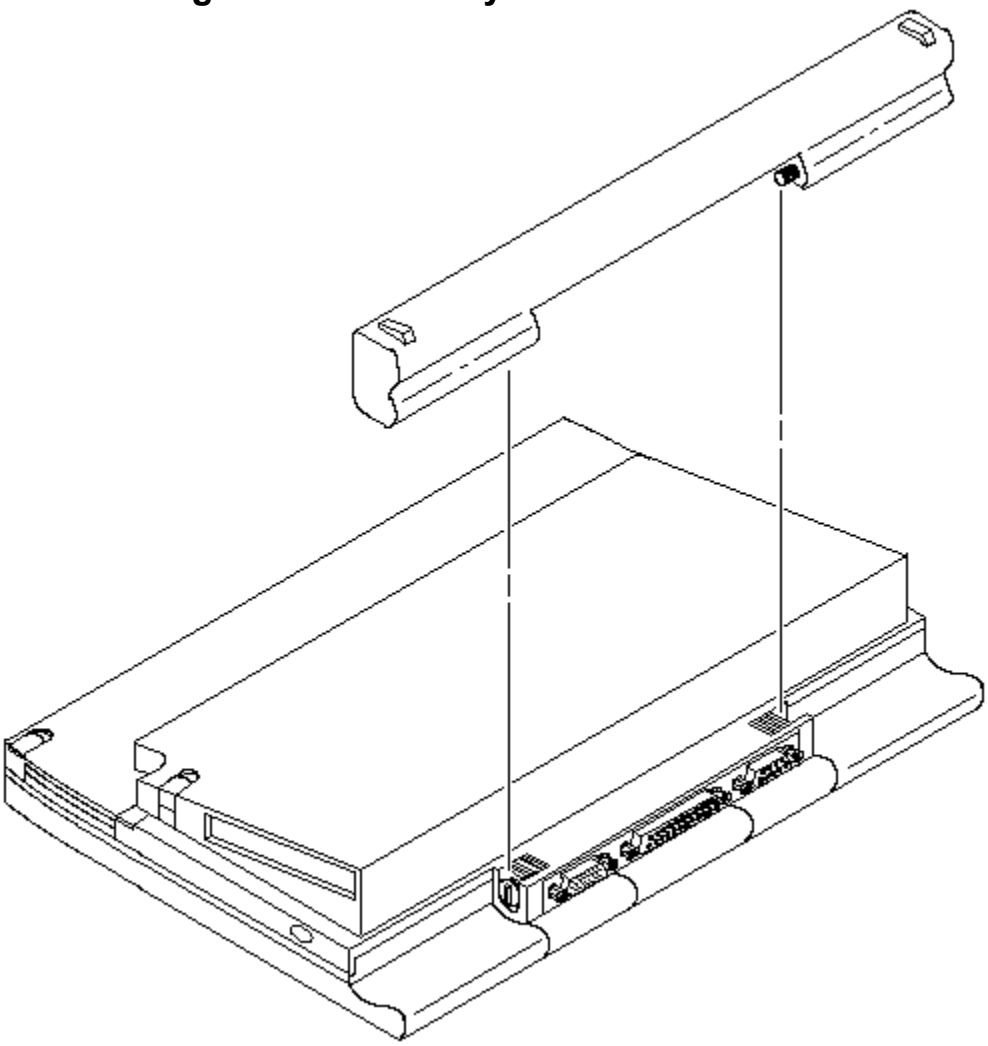


	WARNING There is a danger of battery explosion if a lithium battery is incorrectly replaced. To prevent damage to your notebook computer, be sure the + side faces down when installing a new battery. Also, be sure you replace the battery with either a Digital (P/N 12-41474-05), 3 V dc, lithium battery or equivalent. Depending on your locality, your notebook computers battery might be considered hazardous waste. Make sure you follow any state or local statute to properly dispose of the old battery.

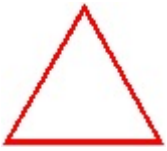
1. Record computer configuration settings using Setup.
2. Swing the RTC out and away from the rear of the notebook computer.
3. Remove the old battery.
4. Install a new battery.
   When installing a new battery, make sure the + side faces down.
5. Return the RTC to its original position.
6. Run Setup to reconfigure the notebook computer using the recorded configuration settings from step 1.

See also: Setup and Configuration

+$#Removing the Main Battery



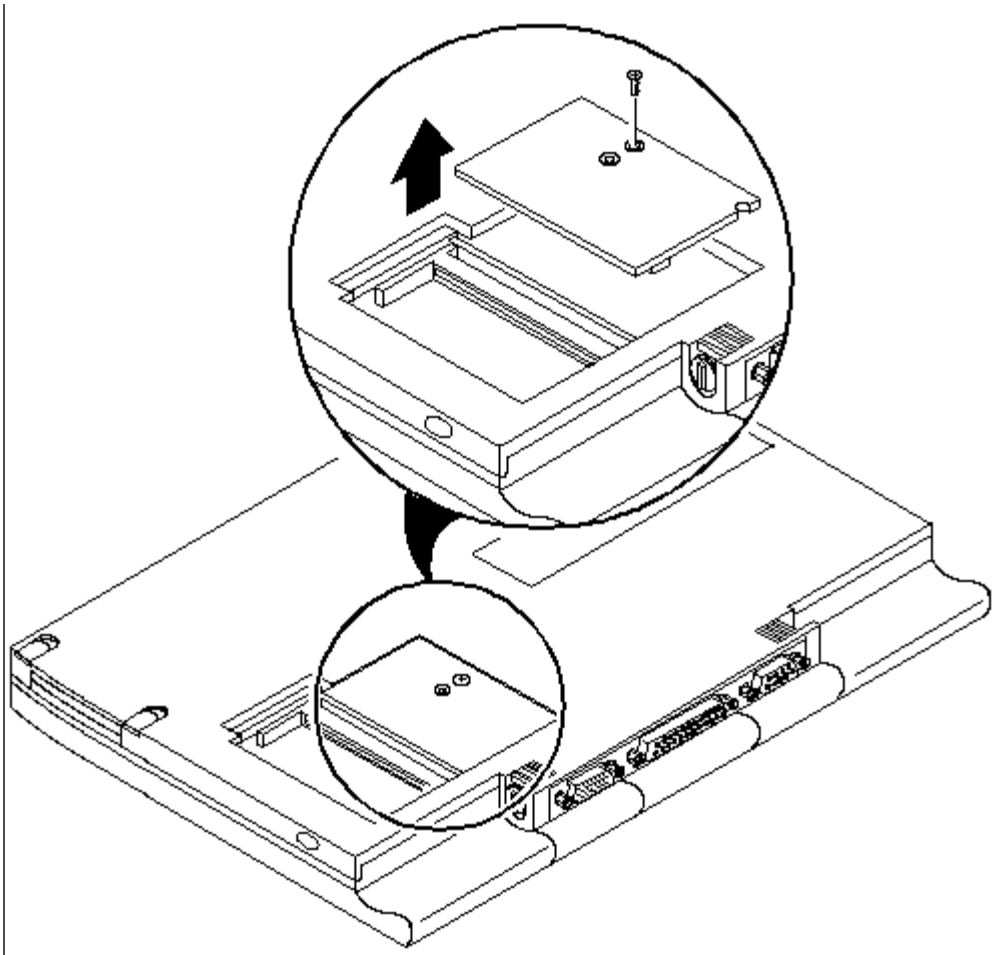
1. Turn off the notebook computer and close the lid.
Disconnect AC adapter, if plugged in.
2. Carefully turn the notebook computer over.
3. Move both slides near the hinge toward each other to unlock the main battery.



CAUTION
Careful removal of the main battery is required because uneven removal can damage the contacts.
Do not short the battery terminals together during or after removal.

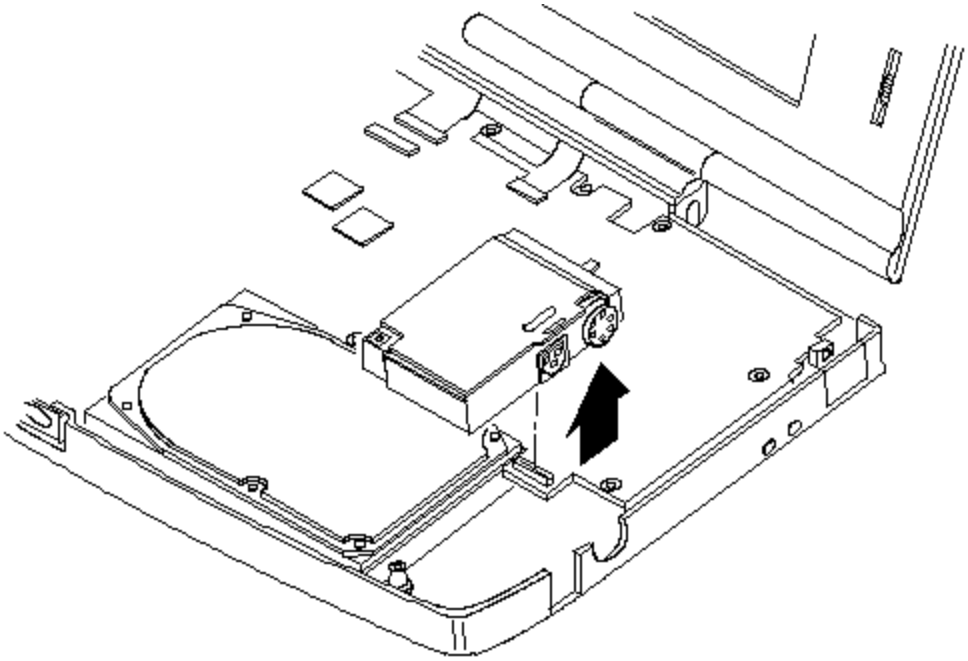
4. Pivot the battery up on its hinge 90 degrees; slowly and evenly pull it straight up, raising it from both ends.

+$#KRemoving the CPU Assembly



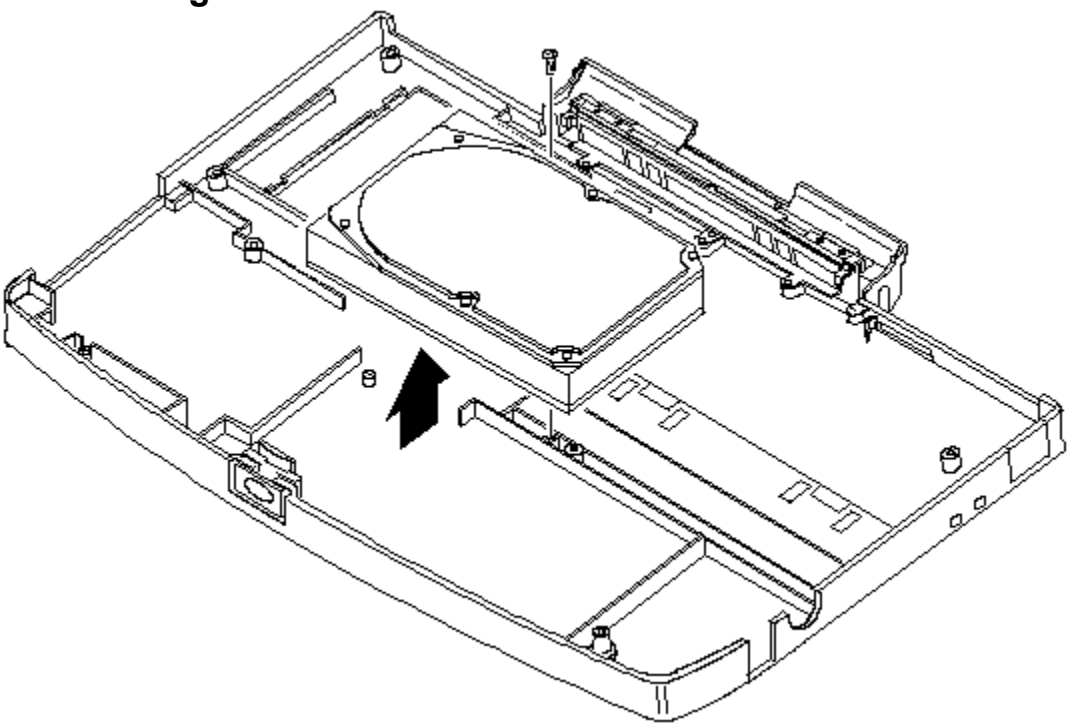
1. Turn off the notebook computer and close the lid.
2. Carefully turn the notebook computer over.
3. Remove the SIMM compartment cover.
4. Remove the DIMM.
5. Disconnect the auxiliary battery connector.
6. Remove the Phillips-head screw that secures the CPU assembly to the main logic board.
7. Remove the CPU assembly by gently prying at the semicircular cutout at the edge of the assembly.

+$#Removing the DC-to-DC/External Mouse/Keyboard Connector Assembly



1. Release and raise the LCD display.
2. Remove the keyboard.
3. Remove the keyboard deck.
4. Remove the DC-to-DC/external mouse/keyboard connector assembly.

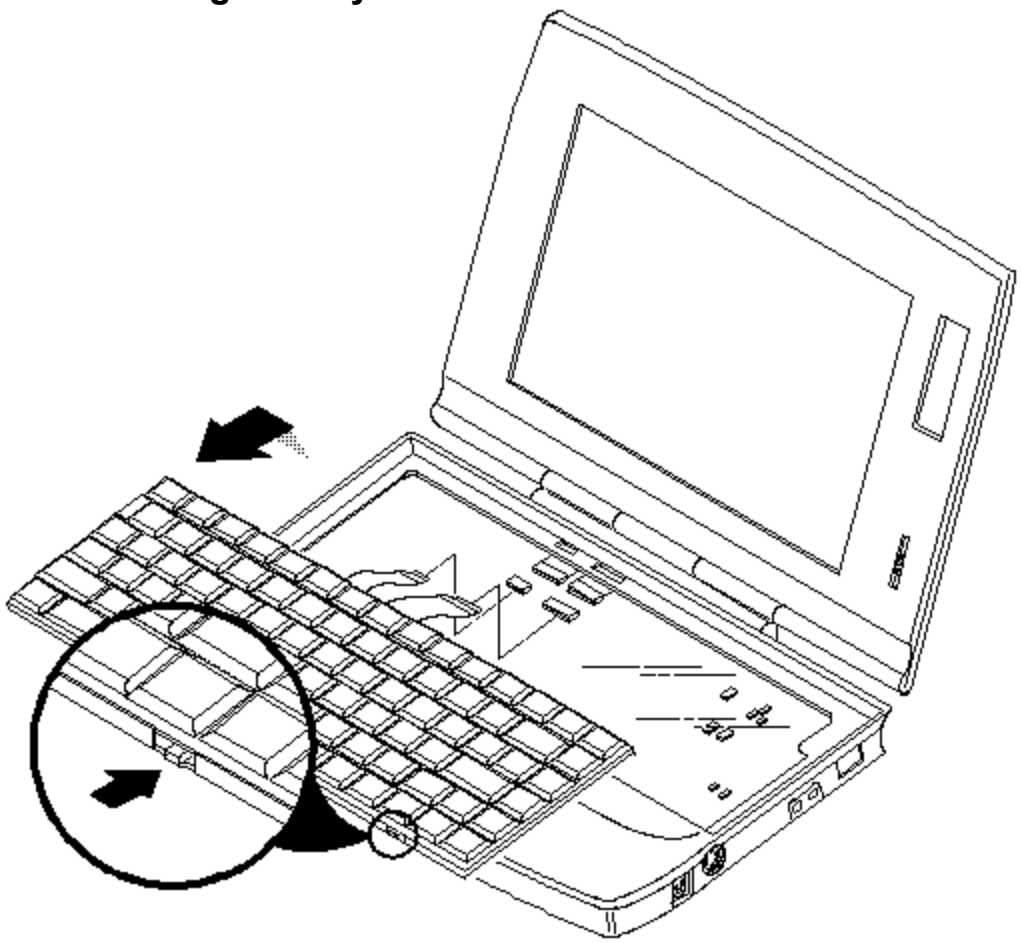
+$#Removing the Hard Disk Drive



1. Release and raise the LCD display.
2. Remove the keyboard.Removing the Keyboard
3. Remove the keyboard deck.
4. Remove the DC-to-DC/external mouse/keyboard connector assembly.
5. Remove the main logic board.
6. Remove the trackball.Removing the Trackball
7. Loosen the screw that secures the hard disk drive to the notebook computer chassis.
8. Carefully lift the hard disk drive into a vertical position.

Disconnect the ribbon cable by holding down the cable connector and gently lifting the hard disk drive upward

+$#KRemoving the Keyboard

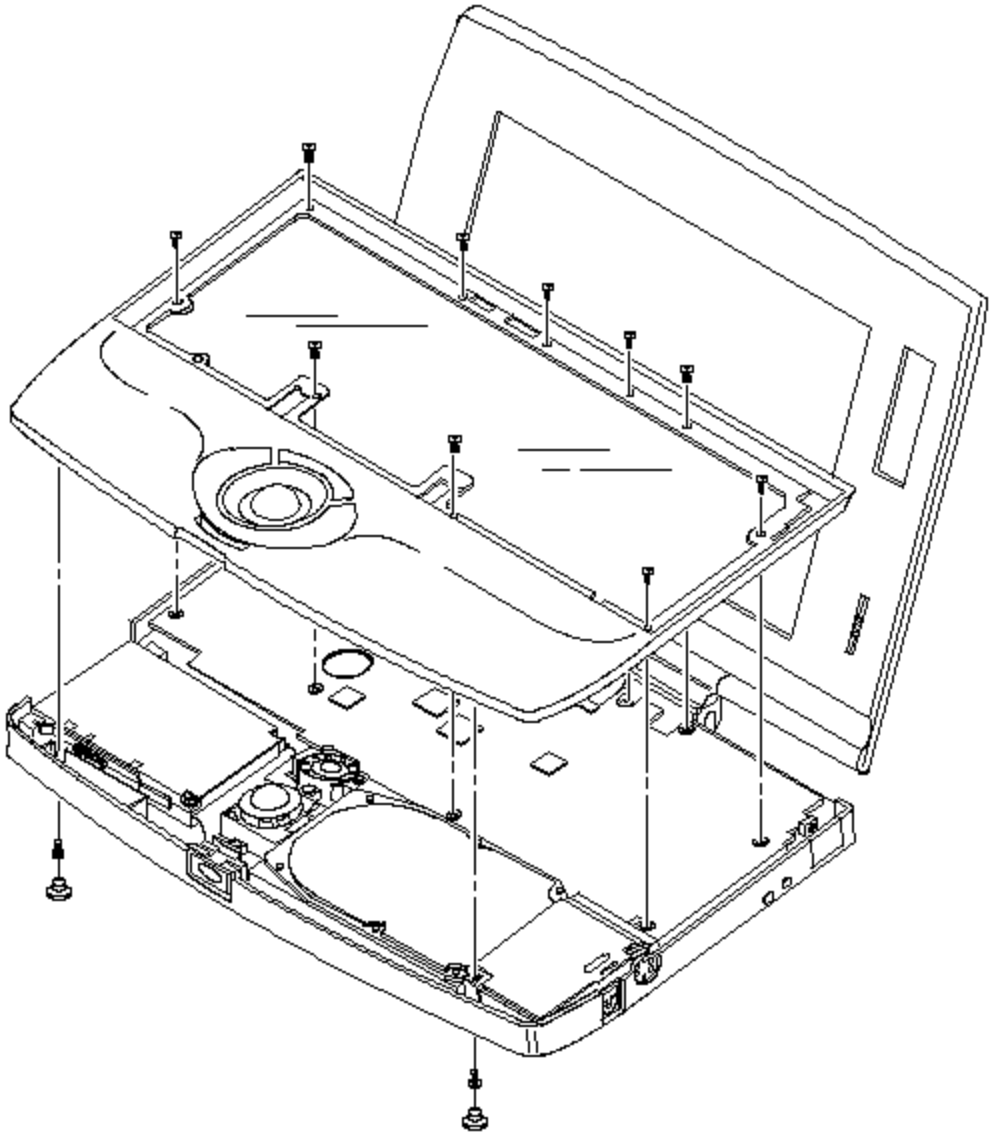


1. Release and raise the LCD display.
2. Carefully slide the three plastic fasteners toward the rear of the notebook computer to release the keyboard.
   Use a small-diameter pick that fits in the space between keys and fits into the small hole in each plastic fastener.

Two plastic fasteners are located in the spaces at the ends of the space bar and the third is between the left arrow key and down arrow keys.

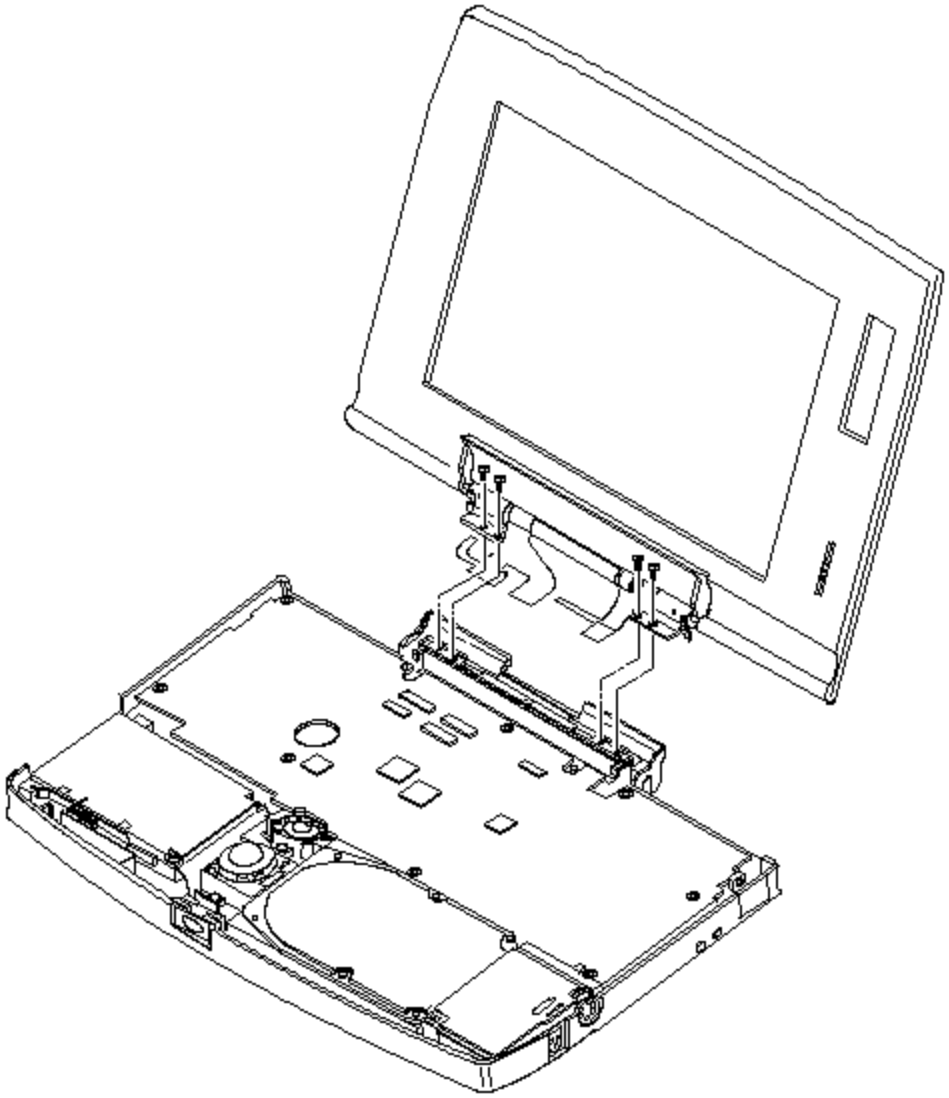
3. Lift up on the keyboard and disconnect the two ribbon cables from the main logic board.
4. Gently remove the keyboard from the notebook computer.

+$#Removing the Keyboard Deck



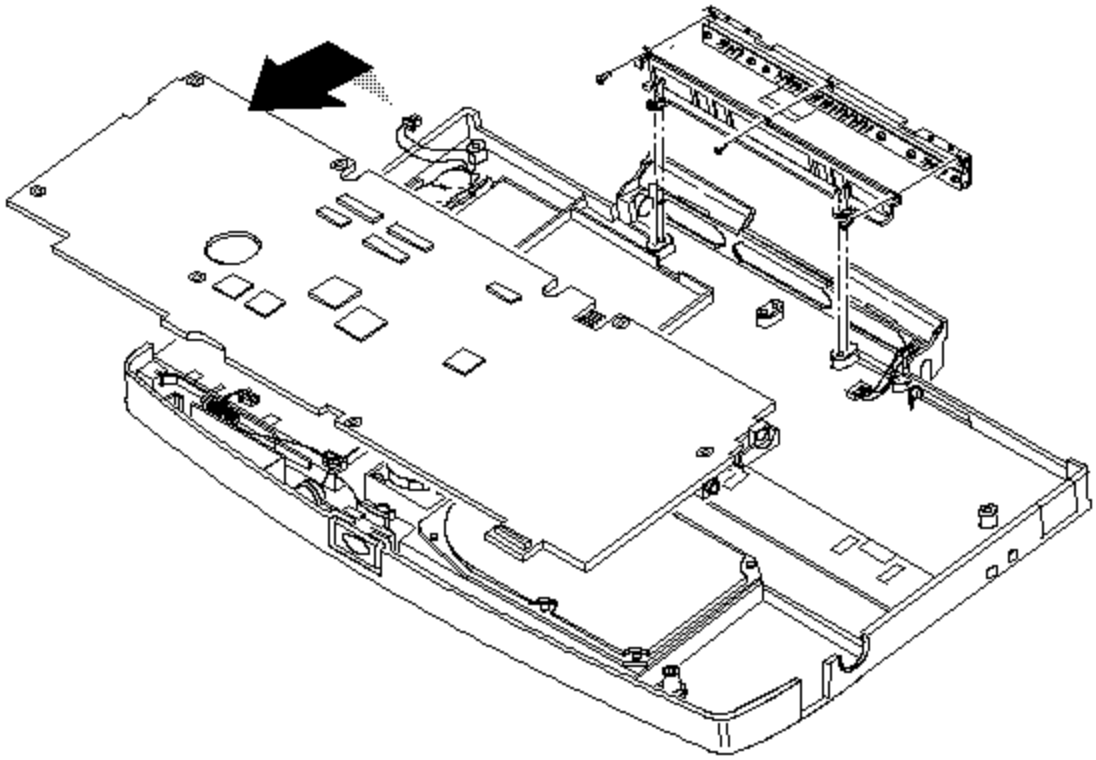
1. Turn the notebook computer over and remove the two front rubber feet.
   Do not remove the two rear rubber feet.
2. Remove the two screws from the rubber feet cavities.
3. Turn the notebook computer right-side-up and then release and raise the LCD display.
4. Remove the keyboard.
5. Remove the screws that secure the keyboard deck to the notebook computer chassis.
   Two of the screws are at the back wall. The remaining 10 screws are located around the perimeter of the keyboard deck.
   Be careful not to remove the screws that secure the main logic board or the LCD display ribbon cable ends.
6. Carefully lift the keyboard deck away from the notebook computer.
   Be careful not to damage the PCMCIA card doors and not to scratch the outer edges of the case.

+$#KRemoving the LCD Display



1. Release and raise the LCD display.
2. Remove the keyboard.
3. Remove the keyboard deck.
4. Disconnect the LCD display from the main logic board.
5. Lift up on the plastic cover to expose the four screws that secure the LCD display to the notebook computer.
6. Remove the two screws that hold the grounded ends of the LCD display ribbon cables.
7. Remove the main battery cable connector from the main logic board.
8. Remove the four screws that hold the LCD display panel metal hinge plate.
9. Lift the LCD display from the notebook computer chassis.

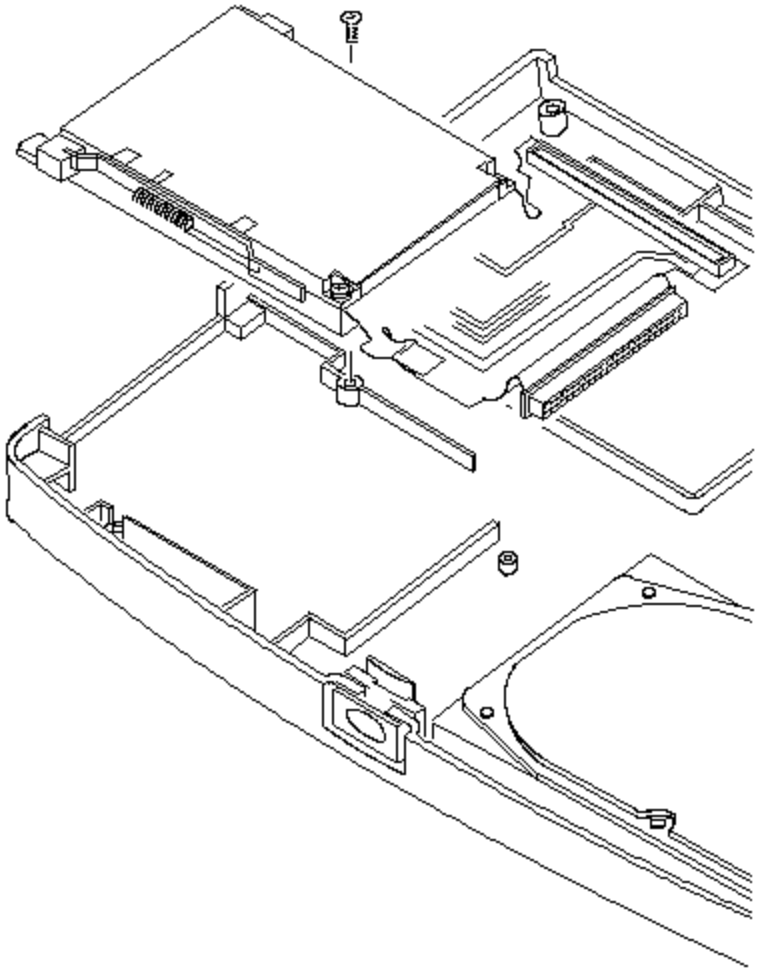
+$#KKK Removing the Main Logic Board and I/O Assembly



1. Release and raise the LCD display.
2. Remove the keyboard.
3. Remove the keyboard deck.
4. Remove the DC-to-DC/external mouse/keyboard connector assembly.
5. Disconnect and remove the LCD display.
6. Remove the two screws that hold the metal assembly to the notebook computer chassis.
7. Remove the two screws that secure the main logic board to the notebook computer chassis.
8. Carefully lift up on the main logic board and disconnect the speaker connector, auxiliary battery connector, and main battery connector.
9. Carefully lift the main logic board and I/O assembly from the notebook computer chassis.

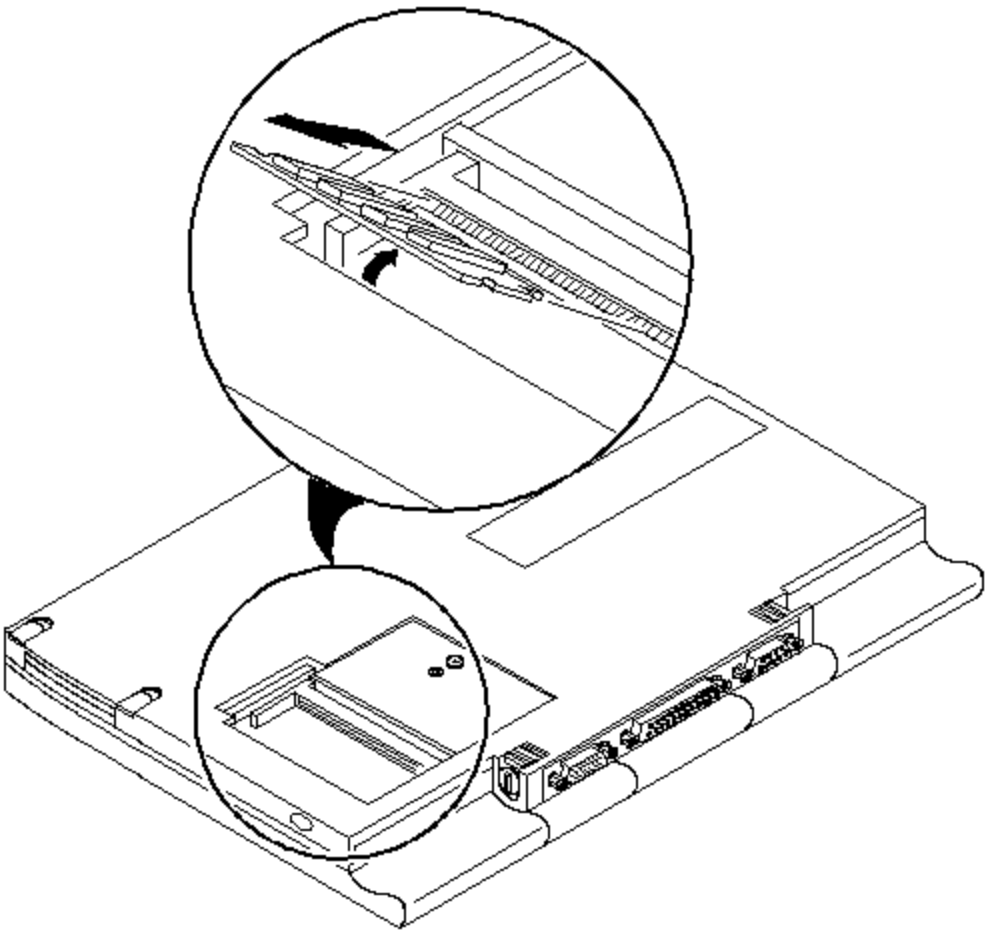
Be careful that the I/O assembly ribbon cable does not inadvertently break away from the main logic board connector.

+$#Removing the PCMCIA Interface



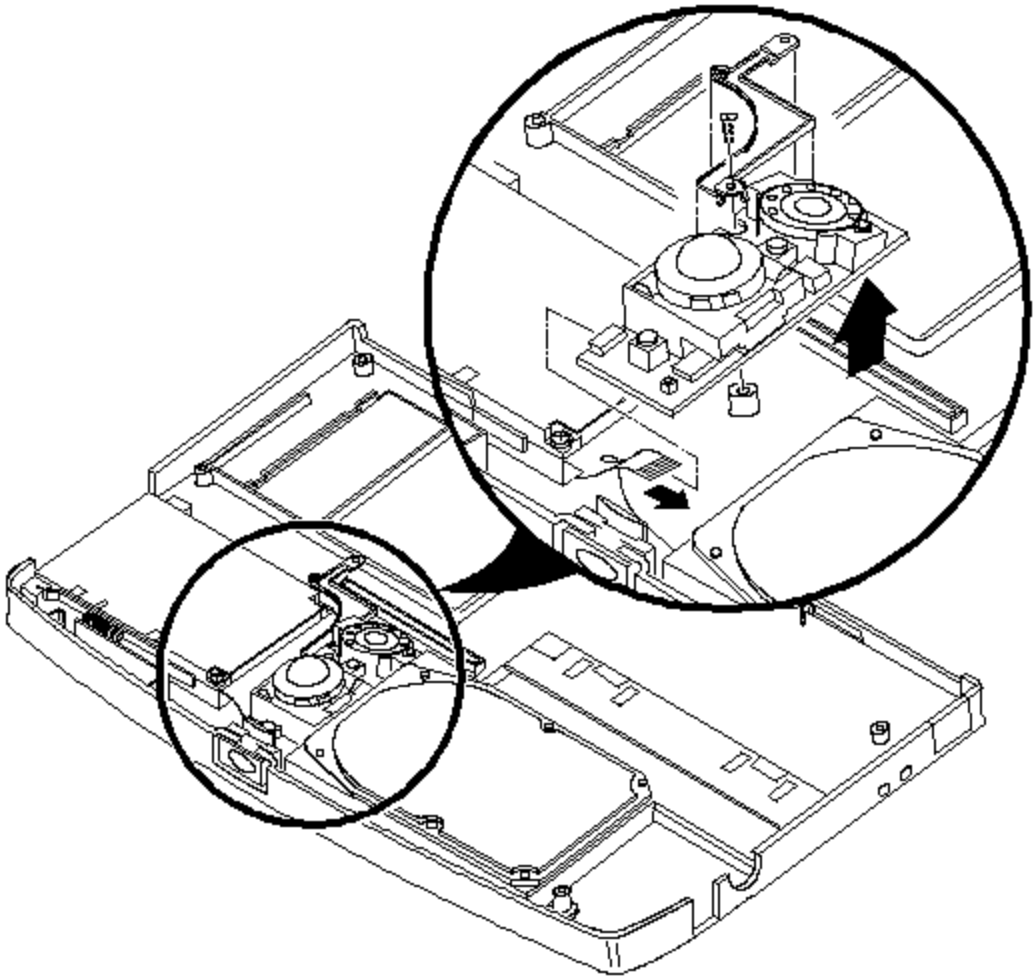
1. Release and raise the LCD display.
2. Remove the keyboard.
3. Remove the keyboard deck.
4. Remove the DC-to-DC/external mouse/keyboard connector assembly.
5. Disconnect the LCD display from the main logic board.
6. Remove the main logic board.
7. Remove the trackball.
   Refer to Removing the Trackball.
8. Remove the screw that secures the PCMCIA interface to the notebook computer chassis.
9. Disconnect the ribbon cable from the hard disk drive and carefully lift the PCMCIA interface from the notebook computer chassis.

+$#Removing a SIMM



1. Turn off the notebook computer and close the lid.
2. Carefully turn the notebook computer over.
3. Remove the SIMM compartment cover.
4. Remove the SIMM.

+$#Removing the Trackball



1. Release and raise the LCD display.
2. Remove the keyboard.
3. Remove the keyboard deck.
4. Remove the DC-to-DC/external mouse/keyboard connector assembly.
5. Disconnect the LCD display from the main logic board.
6. Remove the main logic board.
7. Remove the two screws and the metal bracket used to secure the trackball to the notebook computer chassis.
8. Disconnect the trackball ribbon cable and then lift the trackball from the notebook computer chassis.

+$#Replacing FRUs

No separate replacement procedures are described for the notebook computer FRUs. To replace a FRU, simply reverse the procedure given for removing it.
