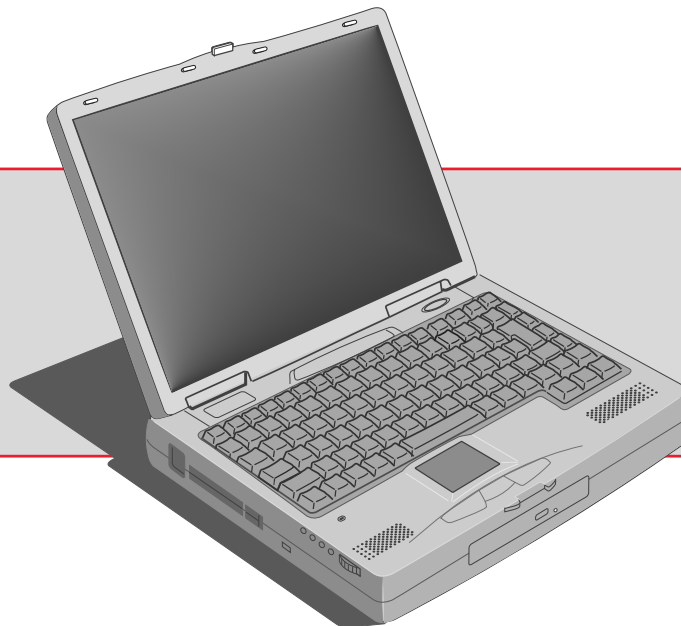




APRICOT PCs & SERVERS

# Apricot AL SERIES

Owner's Handbook



Certificate No.'s:  
FM 1716 FS 21715 FS 30305

including  
**Quick Start  
Guide**

# APRICOT AL SERIES QUICK START GUIDE

---

**For your own safety**

*Read through the Safety & Regulatory Notices section at the start of the Owner's Handbook before using the computer for the first time.*

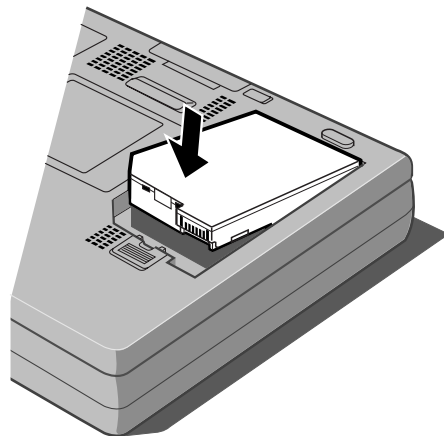
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### Fitting and charging the battery

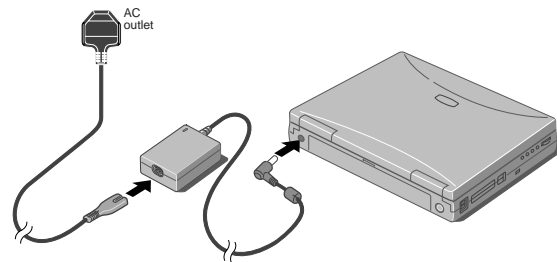
#### Fitting the battery

The battery compartment is located on the underside of the computer, as shown below. Make sure the system is switched off and the AC adapter is disconnected before fitting the battery. To insert the battery, place the end with the two protruding tabs in the compartment first, then gently lower the other end until it clicks into place.



#### Connecting to mains power

Plug one end of the adapter into the mains adapter socket on the rear of the computer and plug into the mains socket.



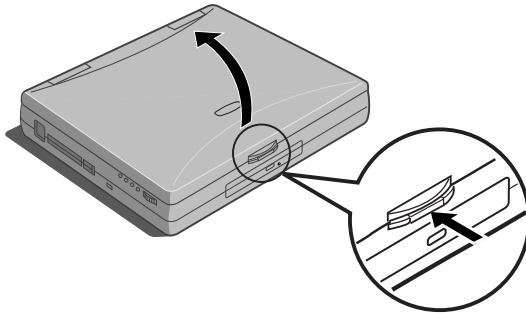
#### Charging the battery

To charge the battery, just switch the computer on using the AC power adapter. A full charge takes approximately 4 hours. The battery charge indicator LED (located on the display hinge, just behind the power switch) is yellow when the battery is charging, and becomes green when the battery is fully charged. Once the battery is fully charged, it stops charging automatically. You can use the computer from mains power while the battery is charging.

## Starting up

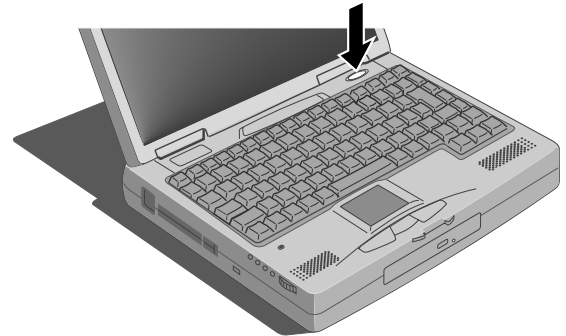
### Opening the display

Gently push the display release button on the front of the computer, as shown in the following figure, and lift the display. Position it at a suitable angle for viewing.



### Switching the computer on

Press the Power button, located above the top right hand side of the keyboard, as shown in the following figure. The LEDs will light, and the computer will start up.

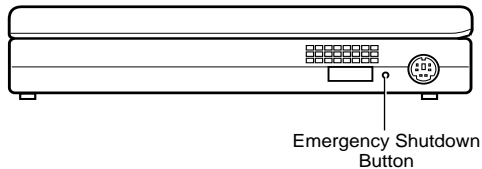


### Switching the computer off

To shut down the computer safely, click the **Start** button in the Windows taskbar, then click **Shut Down**. Select **Shutdown the computer** and click **Yes**.

## Using the Emergency shutdown button

If the system develops a fault and you cannot access the Windows Shutdown command, you can quickly shut down your computer by using the Emergency shutdown button. This is located on the right side of the computer, as shown below. This will shut the computer down completely.



---

### **Make sure it is an emergency!**

*In an emergency shut down, you may lose any recent changes made to the files you are currently working on. The Microsoft ScanDisk program will run automatically when the computer next starts, to check for disk errors.*

---

## Power saving

---

### **Suspend and Standby modes**

In order to keep running as long as possible when using the battery, the computer can be set to enter low power Suspend and Standby modes when not being used. Full details of using these modes are explained in Chapter 4, Battery and Power Management.

Your computer will always meet the Energy Star standard when it is in Suspend mode.

## Registering Windows 95

---

Your computer has the Microsoft Windows 95 operating system already in place or *pre-installed*, so that it is ready for you to set up when you turn the computer on.

The first time you turn on the computer you must tell Windows 95 your name (and the name of the company for which you work, if applicable) and agree to the legal terms and conditions of the Windows 95 Licence Agreement.

Windows 95 then spends a few minutes analysing your computer and configuring itself to take full advantage of your computer's components. Windows 95 also offers you the opportunity to install a printer. However, you do not have to install a printer at this time if you don't want to.

### **Help files**

There are various help files available on the computer. In particular, you should use the Windows Help, which can be found in the Start menu, to help with Windows-related problems. We also recommend that you double-click the 'Important Apricot User Information' icon on your desktop for late-breaking information relating to your computer. This information is also available in the Windows Start menu.

# **APRICOT AL SERIES OWNER'S HANDBOOK**





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Published by:

Apricot Computers Limited  
3500 Parkside  
Birmingham Business Park  
Birmingham, England  
B37 7YS

<http://www.mitsubishi-computers.com>



APRICOT PCs & SERVERS

Printed in the United Kingdom

## SAFETY AND REGULATORY NOTICES

### General

---

#### Electrical

The system uses a safety ground and must be earthed.

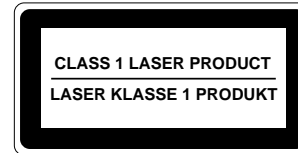
The AC adapter and the AC power cord is a 'disconnect device'. Ensure that the AC adapter is positioned close to the AC power outlet and that the plug is easily accessible.

The power cord packed with the computer complies with the safety standards applicable in the country in which it is first sold. Use only this power cord. Do not substitute a power cord from any other equipment.

To prevent fire and electric shock, do not expose any part of the computer to rain or moisture. Turn off the computer and unplug all power cords before moving or cleaning the system unit.

#### Laser products

Any CD-ROM drive fitted in this system is classified as a CLASS 1 LASER PRODUCT according to IEC825 *Radiation Safety of Laser Products (Equipment Classification: Requirements and User's Guide)*. The CLASS 1 LASER PRODUCT label is located on the underside of the system unit.



The CD-ROM drive contains a laser system which is harmful to the eyes if exposed. Do not attempt to disassemble the CD-ROM drive; if a fault occurs, call an authorised maintainer.

Use the CD-ROM drive only as described in this manual. Failure to do so may result in exposure to hazardous radiation.

### **Ergonomic**

When positioning the system unit, take into account any local or national regulations relating to ergonomic requirements.

### **Anti-static precautions**

---

#### **WARNING**

*Static electricity can cause permanent damage to electronic components. You should be aware of this risk, and take precautions against the discharge of static electricity into the computer.*

---

The computer is at risk from static discharge while the bottom panels are off. This is because the electronic components are exposed. Memory modules, expansion cards and replacement processors are examples of electrostatic sensitive devices (ESSDs).

All work that involves removing the panels must be done in an area completely free of static electricity. We recommend using a Special Handling Area

(SHA) as defined by EN 100015-1: 1992. This means that working surfaces, floor coverings and chairs must be connected to a common earth reference point, and you should wear an earthed wrist strap and anti-static clothing. It is also a good idea to use an ionizer or humidifier to remove static from the air.

When installing any upgrade, be sure you understand what the installation procedure involves before you start. This will enable you to plan your work, and so minimise the amount of time that sensitive components are exposed.

Do not remove the system panels, nor the anti-static bag or wrapping of any upgrade, until you need to. Handle static-sensitive items with extreme care.

Keep all conductive material, and food and drink, away from your work area and the open computer.

## Maintenance

Switch off and disconnect all cables before attempting to clean the computer.

Do not use sprays, solvents or abrasives that might damage the system unit surface. Do not use cleaning fluids or sprays near air vents, ports, or the diskette and CD-ROM drives.

Occasionally clean the diskette and CD-ROM drives using a proprietary head cleaner.

Occasionally wipe the screen with a soft, slightly damp, lint-free cloth. It is best to use anti-static glass cleaner on the screen, but do not spray glass cleaner directly onto the screen; it could run down inside the case and damage the circuitry.

## Transporting

Use common sense when handling the computer; hard disks in particular can be damaged if the computer is dropped or handled roughly. As a precaution, back up the contents of the hard disk to tape or diskettes before moving the computer.

Switch off and disconnect all cables before attempting to move the computer. In particular, do not try to move the computer while it is plugged into the AC power supply.

If you are planning to use the computer in another country, it may not be suitable, check with your supplier, particularly on the availability of the correct AC power cords and AC adapter.

---

### Note

*Any existing maintenance or warranty agreement may not be supportable in another country. The system may have to be returned to the supplier.*

---

## Standards

---

### Safety

This product complies with the European safety standard EN60950 which will, when applicable, include the national deviations for the country in which it is sold.

### Electro-magnetic Compatibility (EMC)

This product complies with the following European EMC standards:

Emissions EN50022 Class B

Immunity EN50082

### Notes

All interconnecting cables (for example, signal and communication cables) should be less than 2 metres in length. If cable extensions are used, ensure adequate earth connections are provided and screened cables are used.

If any metal casework components are removed, during upgrade work for example, ensure that all metal parts are correctly re-assembled and all

internal and external screws are re-fitted and correctly tightened.

---

### Lithium ion battery pack

*Using an incorrect battery can result in explosion; replace only with Mitsubishi Electric Type XB62674 battery. Return the used battery to your Mitsubishi dealer for proper disposal. Do not dismantle, burn or expose battery to temperatures above 100°C/212°F. Remove used battery from system unit immediately. Keep spare and used batteries out of the reach of children.*

---

### Memory expansion

*Turn off power and remove all cables from system and peripherals before removing memory expansion bay cover. After installing memory, replace the bay cover before switching machine on again.*

---

## Legalities

This equipment complies with the relevant clauses of the following European Directives (and all subsequent amendments):

Low Voltage Directive	73/23/EEC
EMC Directive	89/336/EEC
CE Marking Directive	93/68/EEC

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### Important

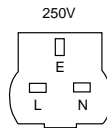
*This system complies with the CE Marking Directive and its strict legal requirements. Use only parts tested and approved by Mitsubishi Electric PC Division. Failure to do so may result in invalidating both the compliance and your warranty. All expansion cards, drives and peripherals must carry the CE mark to ensure continued compliance.*

---

## Power Connection

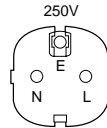
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### Typical AC plugs



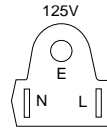
**BS1363A**

U. K.



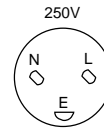
**SHUCO**

Austria Belgium  
Finland France  
Italy Germany  
Sweden Norway  
Holland



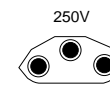
**NEMA 5-15P**

Taiwan  
Thailand  
Japan  
USA  
Canada



**SRAF 1962/DB16/87**

Denmark



**ASE 1011**

Switzerland

### **Checking the AC power supply**

When this product is delivered, it is ready for the commercial AC power supply generally available in the country in which it is first sold. It is supplied with an AC power cord and plug which comply with the relevant safety standards.

Before using the product in a country other than that in which it was originally sold, you must check the voltage and frequency of that country's AC power supply, and the type of power cord required there. Check the power rating labels on the bottom of the computer to ensure that they are compatible with the AC power supply.

### **Connecting to the AC power supply**

---

#### **Important**

*Any peripheral equipment that requires an AC power cord must be earthed.*

---

Use the following guidance to connect the components together. It is important that you take each step in the order indicated.

1. Before connecting any components, ensure that the AC power supply is switched off or disconnected, and that the system unit, and any peripherals are turned off.
2. Where appropriate, connect the computer to the network.
3. Connect the component power cords: system unit plus any other peripherals to nearby, grounded AC power outlets. (Never substitute a power cord from any other appliance). Then switch on or connect the AC power supply.
4. Turn on the system unit first then any other peripherals.

### **Power Cable Connections - UK ONLY**

This product is supplied with an AC power unit that has a non-removable moulded plug.

Always replace the fuse with one of the same type and rating which is BSI or ASTA approved to BS1362. Always refit the fuse cover, never use the plug with the fuse cover omitted.

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---

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## **Appendix**

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# 1 WELCOME

This first chapter gives you a quick tour of your new Apricot AL Series Notebook PC. It lists the special features of the computer and has pictorial guides to help you identify the various parts.

If you want to get started working with your Apricot notebook computer straight away, follow the instructions given in the Quick Start Guide at the front of this manual.

Use the page at the end of this manual to make a note of the manufacturer's data recorded on the various components (product codes, serial numbers, etc.). A service engineer may need this information if the computer develops a fault.

---

## **For your own safety**

*Read the Safety & Regulatory Notices section at the start of this manual before using the computer for the first time.*

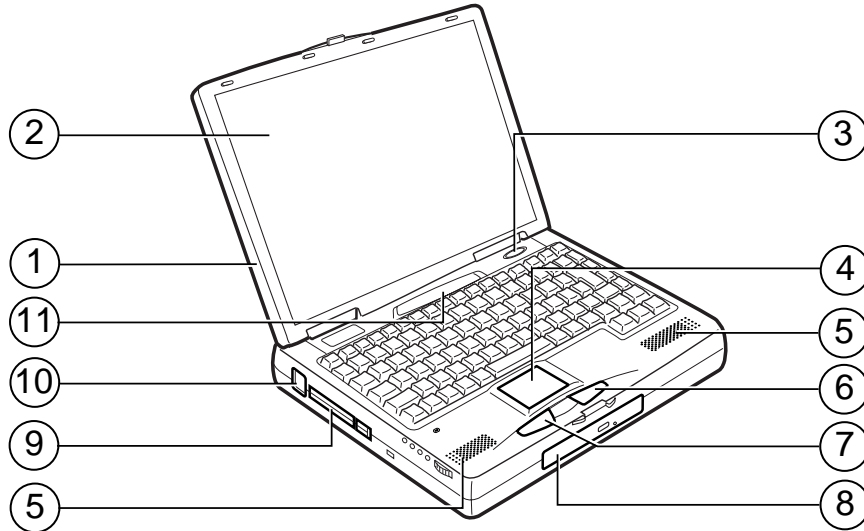
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## **Features**

- ◆ Pentium 233MHz MMX mobile processor
- ◆ 48Mb SDRAM (expandable to 144Mb)
- ◆ 512Kb level 2 cache
- ◆ 2Mb video RAM
- ◆ 3.5" 1.44Mb FDD (Floppy Disk Drive)
- ◆ 20x (max) CD-ROM drive
- ◆ 2.5" 3.2Gb HDD
- ◆ PC card (PCMCIA) Type II/Type III expansion slot
- ◆ 13.3" Thin Film Transistor (TFT) colour LCD display
- ◆ Infra-red port (IrDA 1.1 compliant)
- ◆ Lithium ion battery

## Pictorial Guide to the System Unit

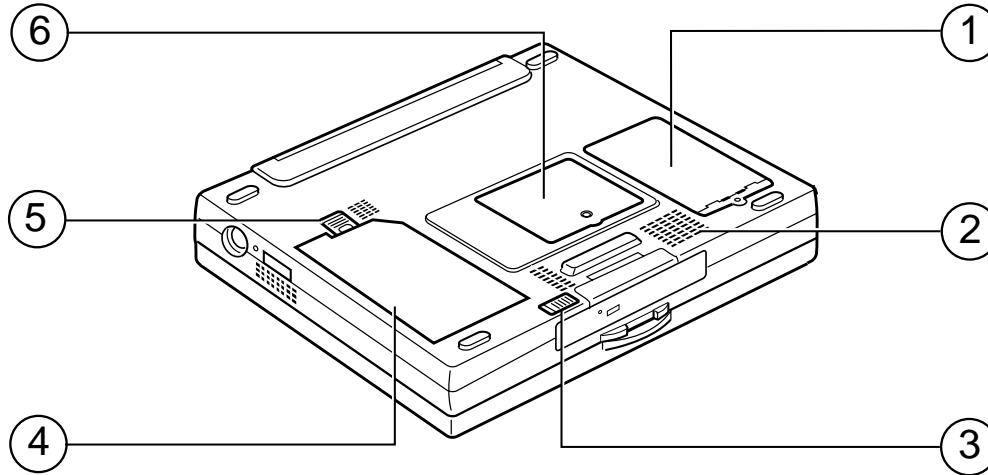
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1. LCD unit
2. TFT display
3. Power switch
4. Trackpad
5. Internal speakers
6. Right button

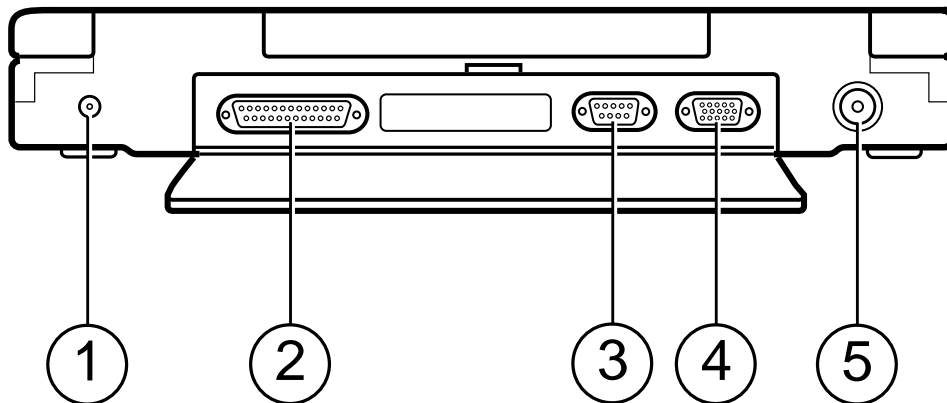
7. Left button
8. CD-ROM/FDD drive
9. PC card sockets
10. USB port
11. LED indicators

### Underside of computer



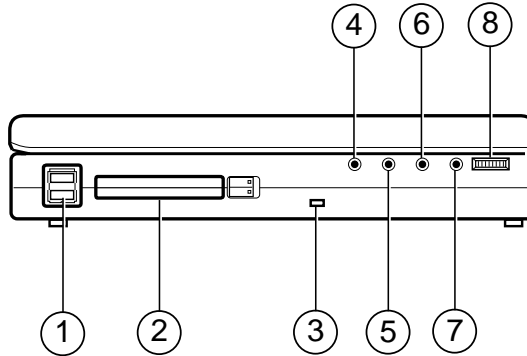
- 1. Hard Disk Drive (HDD)
- 2. Ventilation grille
- 3. Lock for CD-ROM/FDD drive bay
- 4. Internal battery (not fitted initially)
- 5. Internal battery lock
- 6. System memory (RAM) compartment

### Rear of computer

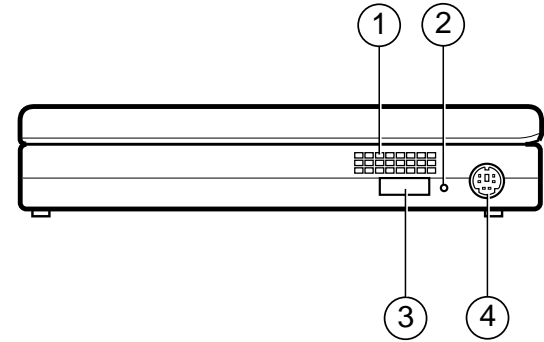


- 1. DC power input
- 2. Parallel printer port
- 3. Serial port

- 4. External monitor connector
- 5. Television output connector

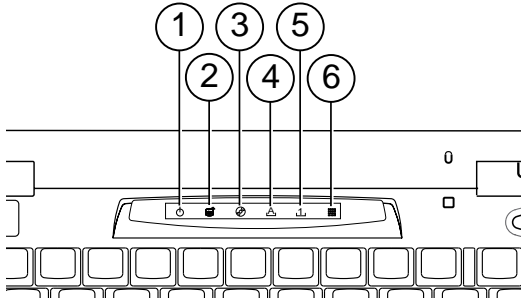
**Left side of computer**

1. USB port
2. PC card socket
3. Security slot - fitting a locking device here will help to protect computer from theft
4. Microphone input - use this to connect an external microphone
5. Audio input (line in)
6. Audio output (line out)
7. Headphone socket
8. Volume control

**Right side of computer**

1. Ventilation grille
2. Emergency power off switch - forces the computer from normal, Standby or Suspend modes into a full 'off' state
3. IrDA port for communication with infrared device such as a printer
4. External device connection for keyboard or mouse or keypad

## Indicator Panel



1. Power indicator – this is green when the CPU speed is slow and orange when it is fast.
2. HDD indicator - this is lit when the HDD is active.
3. CD-ROM/FDD indicator - this is lit when either the CD-ROM drive or the FDD drive is active. This is activated by the drive in the internal bay - it does not work for the FDD when the FDD is connected as an external device.
4. Caps lock indicator - this is lit when the CAPS LOCK key has been pressed
5. Pad lock indicator - this is lit when the numeric pad is active.
6. Scroll lock indicator - this is lit when the scroll lock is activated.

## **Backing up the Pre-installed Software**

---

Apricot PCs arrive with a pre-installed copy of Windows 95. Additional software may be pre-installed at the factory or by your Mitsubishi Electric PC supplier.

We *strongly* recommend that you copy or 'back-up' any pre-installed software soon after setting up the system. This is particularly important for systems supplied without installation disks for the software on the hard disk. A back-up copy will safeguard the pre-installed software against loss if the hard disk fails or if you accidentally overwrite or delete files.

- ◆ The Microsoft Create System Disks utility allows you to create installation diskettes from disk images pre-installed on the hard disk.
- ◆ To back up other pre-installed software (and your own files) use the Backup tool. Click the **Start** button in the Windows taskbar, then **Programs, Accessories, System Tools** and **Backup**.

In general, any copy you make of pre-installed software must be used only as a back-up copy, in case

the pre-installed version is lost. You are **not** allowed to use installation diskettes created from disk images to install the software onto another computer.

### **Creating an emergency startup disk**

We also strongly recommend that you create an emergency startup disk. This will enable you to start Windows in the event of your existing Windows software becoming corrupted.

1. Open the Windows Control Panel by clicking the Settings option on the Start menu.
2. Double click the Add/Remove programs utility in the Windows Control Panel.
3. Click on the Startup disk tab in the Add/Remove programs Properties dialog.
4. Insert a formatted floppy disk into the floppy disk drive.
5. Click the Create Disk button.
6. Label the floppy disk "Windows 95 Startup disk" and keep in a safe place.



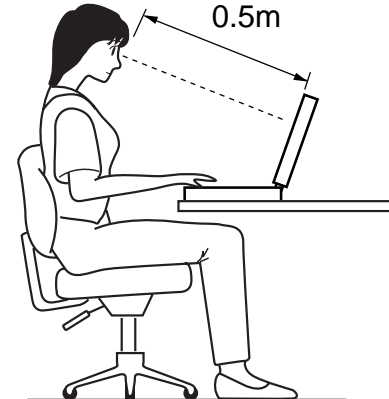
## General Advice

---

As a portable computer, this machine is designed to be used in various environments. The following paragraphs contain guidelines in caring for yourself and your computer.

- ◆ Place the computer on a firm, level surface if possible, away from vibration.
- ◆ Site the computer away from moisture, direct sunlight, and extremes of heat and cold. Avoid situations in which the surrounding temperature or humidity may change rapidly. When the computer is in use, the temperature should be between 10 and 35 °C and humidity between 20% and 80% (with no condensation). Remove battery if the computer is not being used for long periods.
- ◆ Keep the computer unit clean, using a non-abrasive cloth.
- ◆ Make sure there is adequate space around the computer for ventilation.

- ◆ Ensure that you maintain a healthy posture when using the computer. Ideally, your feet should be on the floor and your legs at right angles, with your upper legs approximately horizontal. Your back should be kept straight, and your elbows should be about the same height as the keyboard. Also, your eyes should generally be approximately 0.5m from the display, with the top of the screen as close to your direct line of vision as possible.



- ◆ When positioning the system unit, take into account any local or national regulations relating to ergonomic requirements. For example, you should ensure that little or no light is reflected off the monitor screen as glare, and that the keyboard is placed in a comfortable position for typing.
- ◆ You should be aware that in some places, the use of a portable computer is strictly forbidden. For example, you should check before using your portable computer inside a hospital, or before boarding an aircraft.
- ◆ Make sure that any sensitive information on your computer is protected by using access passwords.
- ◆ Keep the computer away from strong magnetic fields, such as stereo speakers.
- ◆ Do not use the computer near liquids or corrosive chemicals
- ◆ Ensure all cables, particularly power cords, do not trail across the floor where people walking past can snag them.

## 2 USING THE COMPUTER'S CONTROLS

### Using the trackpad

---

The trackpad is the small square area located in front of the keyboard. The trackpad, together with the two buttons in front of it, perform the same function as a mouse, although if preferred, a conventional mouse can be used with the computer. Refer to Chapter 5, Optional devices for details on connecting a mouse.

Throughout this manual, the terminology assumes the 'conventional' use of the left and right mouse buttons i.e. left button to select and drag objects, and right button to display properties or context. If the function of these buttons has been changed around by the user, then this should be borne in mind when reading the manual.

#### Navigation

As you move your finger across the trackpad, while applying gentle downward pressure, the pointer on the screen will move accordingly. Move the pointer

a large distance by quickly moving your finger across the trackpad in the required direction several times. For more accurate positioning of the pointer, much less movement of your finger is required.

#### Selecting items on the screen

There are two ways of selecting items on the screen:

- ◆ Using the buttons

With the pointer over an item, use the buttons in front of the trackpad in the same way as you would use the conventional right and left mouse keys.

- ◆ Using the trackpad

You can use the trackpad itself as you would use the select key of a conventional mouse. With the pointer over an item, tap it once for a 'single-click' and twice for a 'double-click'.

### **Moving items around the screen**

This is similar to using a conventional mouse. First use the left button to select an item. If you now keep the button held down while moving your finger across the trackpad, the item will be dragged across the screen.

## Using the keyboard

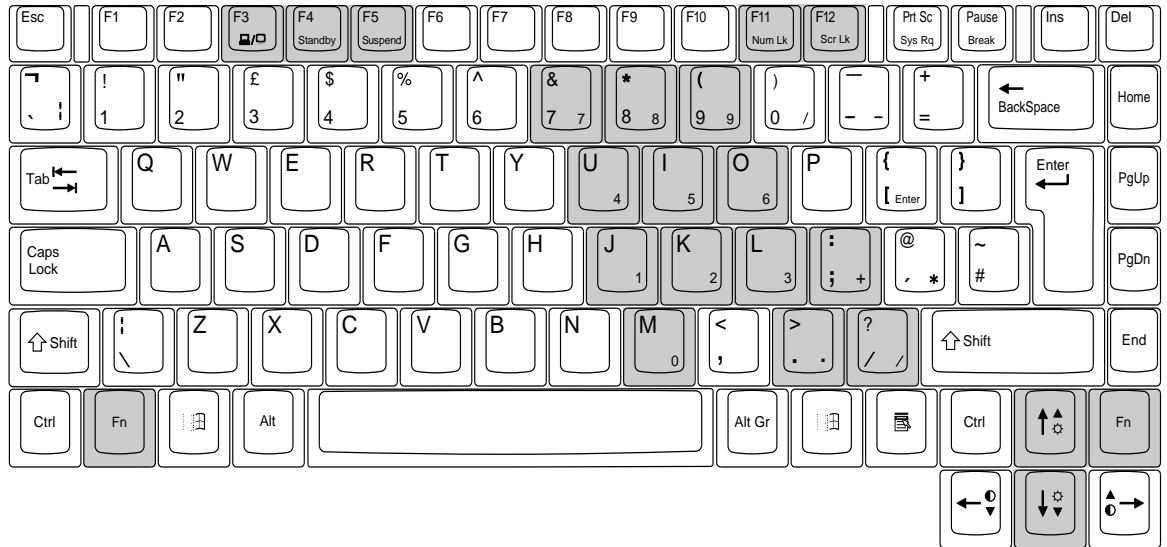
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Although the keyboard is similar to a standard desktop model, some of the keys perform extra functions in order to conserve space. These extra functions are shown as blue text, and are shown shaded in the keyboard illustration on the following page. Their function is also described in the accompanying table. To use any of these extra functions, hold the <Fn> key down while pressing the required function key.

### **The Numeric keypad overlay**

To activate the numeric keypad, press F11 while holding down the Function key. The Pad lock LED will light up to indicate that the number function is activated. Pressing F11 while holding down the Function key again will de-activate the number pad, returning the keys to their normal meanings.

# OWNER'S HANDBOOK




<b>Key</b>	<b>Function</b>
Fn	Used in conjunction with the blue function keys
 <sup>1</sup>	Toggles between the LCD and external CRT displays
Standby <sup>1</sup>	Puts the computer into Standby mode
Suspend <sup>1</sup>	Puts the computer into Suspend mode
NumLk	Activates the numeric keypad
ScrLk	Activates the scroll lock feature
Enter	Enter
Adjust brightness	Adjusts the brightness of the LCD displays.


---

<sup>1</sup> For more information on Power Management keys, refer to Chapter 4 - Battery and Power Management.

## The Windows 95 key

The Windows 95  keys have the Windows 95 icon on them, and they can be found on each side of the spacebar (two keys along, next to the <Alt> keys). Pressing either of the Windows 95 keys will display the Start menu. You can then use the arrow keys, instead of the trackpad or mouse to navigate the menus. To cancel the menu, press the <Esc> key.

## Right-click button

The right-click  key can be used in place of the right button. In general, it is used (after selecting an item) to display a menu containing various options relating to that item. The options shown depend on the context. To cancel the menu, press the <Esc> key.

## Setting keyboard options using the Windows control panel

From the Start menu, click Settings, then click Control Panel from the submenu which appears. To view the keyboard properties dialog, double-click the

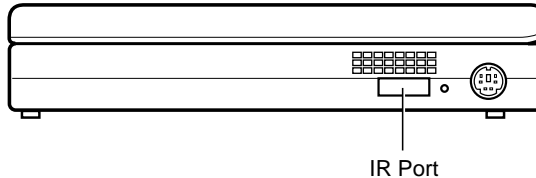
keyboard icon which is located within the Control Panel. The keyboard properties dialog contains three tabs: the Speed tab allows you to control the character repeat settings; the Language tab allows you to change the default language which is utilised on the keyboard, and the General tab allows you to change the default keyboard type.



## Use of the infrared facility

---

Your computer is fitted with an IrDA 1.1 compliant infrared port which enables you to make wireless communications with infrared devices such as IR printers. The infrared port is shown in the following diagram.



When using the infrared port, it is important to ensure that the two devices are aligned in such a way that the infrared signal is transmitted properly. Generally, the two ports should be approximately facing each other, and situated within two metres of each other. There should also be a clear path between the two ports. The principle of operation is the same as that of remote controls for television sets and other domestic devices.

An Infrared Monitor utility has been pre-installed on your computer. It allows you to control many aspects of infrared communication. To access the Infrared Monitor, click Settings from the Start menu, then click Control Panel from the sub-menu which then appears. The utility can then be accessed by double-clicking on the Infrared icon in the Control Panel. For convenience, you can also display the infrared icon in the taskbar by checking the 'Display the infrared icon in the taskbar' option on the Preferences tab.

---

### Changing IR port setting

*Although the Infrared Monitor options have been configured on your computer before leaving the factory, it will be necessary to re-configure the IR port setting. To do this, click on the Options tab and select 'COM2' in the 'Enable infrared communication on...' menu*

---

The process of setting up infrared communication with Infrared Monitor is fairly simple, and full details are provided in Windows 95 Help and in the Important Apricot User Information on your desktop. There are however one or two things to bear in mind.

Generally, the infrared port continuously searches for IR devices within range, and when one is found, it is ready for use. Depending on the device however, you may need to install appropriate driver software before the device can be used. Refer to the documentation supplied with your IR device.

The options available in the Infrared Monitor utility have been correctly configured on your computer before leaving the factory. Should you have any problems however, check the settings in the Infrared Monitor utility. Also, refer to Chapter 8, Troubleshooting.

## 3 DISKETTES AND CDS

Your Apricot Notebook PC comes with a 1.44Mb floppy diskette drive (FDD) and a 20x (max.) CD-ROM drive. Either one of these drives can be fitted inside the system unit at any one time. It is also possible to use the FDD externally using a parallel cable, while the CD-ROM drive is fitted inside the

system unit. These topics are covered in more detail later in the chapter.

The bay for the FDD/CD-ROM is in the front of the computer, as shown in the Pictorial Guide in Chapter 1.

### Diskette drive

---

#### Inserting a diskette

1. Insert the diskette with the metal shutter foremost, and with the label side facing upwards.
2. Push the diskette all the way in until it 'clicks' into place. The drive's EJECT button pops out slightly. The drive flap stays open, leaving the diskette just visible.

#### Ejecting a diskette

- ◆ Wait until the drive's activity indicator is unlit, then press the EJECT button.

If a diskette becomes stuck in the drive, perhaps because its label has peeled back, do not attempt to remove it with tweezers or any similar implement; you risk damaging the drive. Call an authorised maintainer.

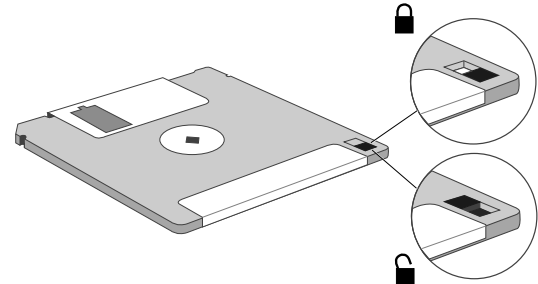
### Care of diskettes

Each diskette has a rigid plastic cover, with a metal shutter that guards the disk surface. Never touch the exposed surface under the shutter – you could deform the disk or leave a fingerprint that might make the diskette difficult to read.

Keep diskettes away from dust, moisture, magnetic objects, and equipment that generates magnetic fields. Also, avoid extremes of temperature and exposure to direct sunlight. Otherwise, data recorded on the diskette may become corrupted.

### Write-protecting a diskette

- ◆ A diskette can be write-protected by sliding a tab towards the edge of the diskette to expose the small hole beneath it. Note that the location of the tab depends on the type of diskette.



You can read, copy or print the files on a write-protected diskette, but you cannot create, rename or delete any files.

## CD-ROM Drive

---

The CD-ROM drive can retrieve multimedia data from CD-ROM discs and multi-session Photo-CD discs. It can also play normal music CDs.

Keep CDs well away from dust and moisture, and avoid touching the surface of the CD. Avoid extremes of temperature and exposure to direct sunlight as these may cause the disc to warp.

Do not attempt to move the computer while a CD is in the drive, especially if the CD is being played at the time.

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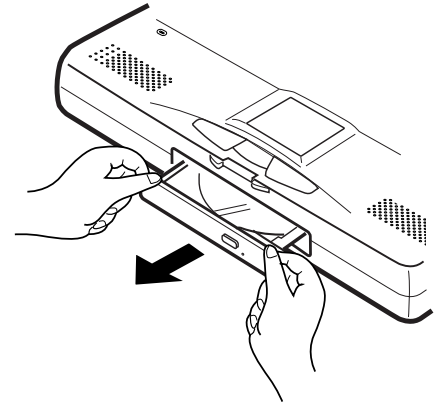
### Warning

*The laser beam inside the CD-ROM is harmful to the eyes if looked at directly. Do not attempt to disassemble the CD-ROM drive. If a fault occurs, call an authorised maintainer.*

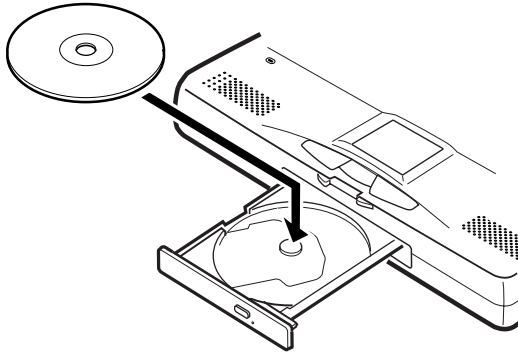
---

### Inserting a CD

1. Press the EJECT button on the front of drive. The tray should open partially.
2. Gently pull the drawer fully open in order to insert the CD.



3. Place the CD centrally, printed side up, on the platter.
4. While supporting the underside of the CD tray, gently push the CD down until it snaps onto the central mechanism.



5. Gently push the platter all the way in until it clicks into place.

### **Ejecting a CD**

1. Ensure that the drive's activity indicator is not showing 'busy', then press the EJECT button to partially open the drawer.
2. Gently pull the drawer fully open in order to remove the CD.

### **Emergency removal of a CD**

To eject the platter manually (for example, during a power failure) use the emergency eject hole, located just to the right of the eject button.

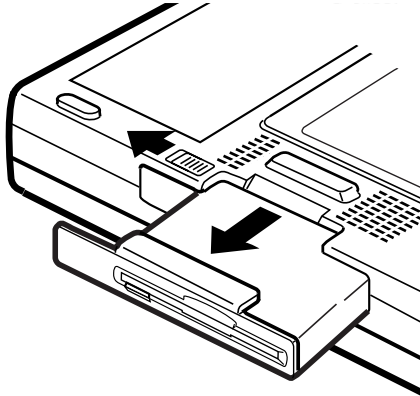
1. Shut down the computer, and turn it off.
2. Insert a thin non-metallic rod into the emergency eject hole. Push carefully and firmly to open the drawer.

## Changing the drive configuration

---

It is possible to interchange the floppy disk drive with the CD-ROM drive. Whether you are replacing the CD-ROM drive with the FDD, or the FDD with the CD-ROM drive the procedure is similar:

1. Remove any disks from the drive.
2. Shut down the computer, and turn it off.
3. Turn the computer upside down, with the front facing toward you.
4. Slide the drive securing button to the left while gently pulling the drive outwards. The drive should disengage from its connections. Slide the drive out of its compartment.
5. Put the removed drive in a safe place.
6. Insert the other drive into the vacant compartment, ensuring it is the correct way up. The drives only fit one way, so if the drive only moves so far, you are inserting it the wrong way round. Push the drive all the way back until it clicks into place.



## Using the floppy diskette drive as an external device

---

If you need to use a CD-ROM drive and the FDD at the same time, it is possible to use the FDD as an external device.

---

### Note

*The floppy drive indicator LED only works when the FDD is being used in the drive bay - it does not work if the FDD is being used as an external device.*

---

1. Shut down the computer, and turn it off.
2. Connect the parallel cable to the parallel port.
3. Connect the other end of the cable to the FDD.
4. Insert the CD-ROM drive into the internal drive bay.
5. Switch the computer back on. The computer will automatically recognise the newly-connected drive.
6. When disconnecting the FDD, make sure you remove the parallel cable from the back of the computer, otherwise the computer will not work properly.

---

### Caution

- ◆ *When using the FDD externally, ensure that you set it on a flat surface, and that nothing is placed on top of the drive.*
  - ◆ *Keep a firm hold of the drive when inserting or removing a diskette.*
  - ◆ *Keep the FDD and the CD-ROM drive in the bag provided when they are not fitted or connected to the computer.*
  - ◆ *When using the FDD as an external device, make sure that the CD-ROM drive is properly fitted in the internal drive bay - do not leave this bay empty.*
  - ◆ *Make sure you shut the computer down before disconnecting the drive.*
  - ◆ *Your computer will not work properly if the CD-ROM drive is connected externally.*
-



## 4 BATTERY AND POWER MANAGEMENT

### Battery information

---

The computer comes with a rechargeable lithium-ion battery pack, which provides up to 2.5 hours usage. The battery pack can be recharged between 300 and 500 times. After this it will last for a noticeably shorter time between charges. At this point the battery should be discarded and replaced.

---

#### Caution

*It is possible that the battery may not be fully charged after transit, and we therefore recommend that you charge the battery before using it. For details on charging the battery, refer to the section later in this chapter.*

*Used batteries can be hazardous; see the Safety chapter for information about battery safety and disposal.*

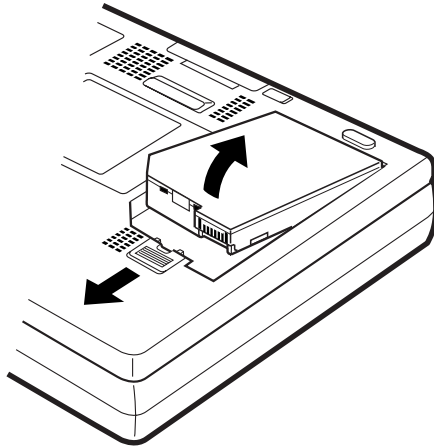
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#### Fitting the battery

The battery is housed in a compartment on the underside of the computer. To fit the battery, refer to the Quick Start Guide at the beginning of this manual.

#### Removing the battery

Make sure the system is switched off and the AC adapter is disconnected before removing the battery. To remove the battery, slide the battery securing button towards the back of the computer, then raise one end of the battery until the unit can be lifted from the compartment.



### **Charging the battery**

The battery begins charging whenever you plug the computer into the mains using the AC adapter. You can use the computer while the battery is charging. When the battery reaches full charge, it stops charging automatically. A full charge takes 3 - 4 hours. You can monitor the progress of the charge by accessing the Windows battery meter utility. To view the battery meter, double-click on the 'plug'

icon on the taskbar (beside the clock). Alternatively, you can just hold the pointer over the icon, and the charge progress will be displayed. This is in addition to the battery charge LED, located just above the power switch, which changes from yellow to green when the battery is fully charged.

---

#### **Note**

*When using the battery, we recommend that you allow it to charge and discharge completely each time. Partial charges/discharges will result in a drastic reduction of the battery's lifetime.*

---

### **How to use the battery efficiently**

There are a number of factors which affect the lifetime of the battery. These include:

- ◆ Use of Power Management. Refer to the Power Management section later in this chapter for further details.
- ◆ The type of work you do with your computer  
For example, excessive saving of large files to disk tends to draw a relatively large amount of power.

- ◆ System configuration

There are many aspects of system configuration which have direct affect on the lifetime of the battery. For example, disabling the sound or the serial and parallel ports can help to conserve battery power.

If the battery is not going to be used for a long period of time, it should be run down to a low charge, removed from the computer, and stored in a place which is not subject to high levels of humidity, within the temperature range 0-40 °C.

Ensure a good connection to the battery is maintained by keeping both terminals of the battery clean and dry.

If the parallel or serial port are not being used, disable them in Setup, as this will conserve some power. Refer to Chapter 7 for further details.

The system should be used within the temperature range 10-35°C at all times.

### **If the battery is running out**

Whenever using the computer with the battery pack, you should check the battery-level frequently. You can do this by checking the Windows battery meter, as described in the previous section.

You can also have visible and audible warnings which come into operation when the battery is low on charge. The visible warnings come into operation automatically, but the audible warnings can be enabled and disabled in Setup. For details on setting this function, refer to the Power Management section later in this chapter and the Setup utility.

These low-power warnings are comprised of two distinct stages, as described in the following table.

<b>Power level of battery</b>	<b>Visible warning</b>	<b>Audible warning</b>
Stage 1 (small amount of power left)	Power LED flashes every second	A single beep
Stage 2 (almost no power left)	Power LED flashes every 0.5 second	A single beep every minute until power runs out.

Depending on how the computer is being used, Warning 2 continues for up to 5 minutes, at which point the computer enters Suspend mode. Depending on how Suspend mode has been configured in Setup, memory contents are either saved to the HDD, or retained in RAM. For further information on configuring Suspend mode, refer to the Power Management section overleaf.

## Power management

---

In order to maximise battery life, this computer makes use of an advanced Power Management feature. It is recommended that you make use of the Power Management facilities when you are using battery power.

In general, Power Management allows the computer to revert to a low power mode when it is not being used. There are two basic levels of low power mode: Suspend and Standby.

Suspend mode is the highest level Power Management mode, offering the lowest power consumption. It can also be configured to operate in two different ways, as described later in this section. Standby mode is an intermediate level of Power Management which uses slightly more power than Suspend mode. It turns off various devices in the system, including the screen, until you start using the computer again.

There are many ways of configuring the various Power Management features, both for AC power and DC (battery) power.

### Turning Power Management on and off

All aspects of the Power Management features are controlled from the Setup utility. For further information on navigating the Setup utility, refer to Chapter 7, BIOS setup, or the Help within the Setup utility itself.

1. Enter the Setup utility by pressing the F2 button when prompted during Startup.
2. Select either the AC Mode Power Savings or the DC Mode Power Savings from the Power menu.
3. To switch Power Management off, set the Power Savings menu option to 'Disabled'; to switch it on, set it to one of the other options, described below.

You can set 'Customized' Savings if you want to control the other Power Management fields on this page, or you can set one of the other pre-defined set of Power Management

parameters - Maximum Power Savings or Maximum Performance.

### **Standby mode**

There are two ways of entering Standby mode:

- ◆ Standby Timeout
- ◆ Using the Power Management keys

#### **Standby Timeout**

Standby mode can be triggered by a period of inactivity on the keyboard and the mouse. This period of inactivity is called the Standby Timeout, and it can be as short as 1 minute. There are default Standby Timeouts for the pre-defined Power Saving parameters, as mentioned in the previous section, or you can set the Standby Timeout manually as follows:

1. Switch Power Management to 'Customized', as described in the previous section.
2. Change the Standby Timeout setting to the desired value.

Your computer will now enter Standby mode after the specified period of inactivity. To exit from Standby mode, press any key, or move your finger along the trackpad.

#### **Power Management keys**

1. To enter Standby mode, press the <Fn> → <F4> keys.
2. To exit from Standby mode, press any key, or move your finger along the trackpad.

### **Suspend mode**

As previously mentioned, Suspend mode can be configured to operate in two different ways:

- ◆ Save to Disk mode

In Save to Disk mode, the contents of the RAM are saved to the HDD before the computer switches off. This mode uses less power than Memory Suspend mode.

- ◆ Memory Suspend mode

In Memory Suspend mode, the contents of RAM are preserved when the computer enters Suspend mode. This mode uses slightly more power than Save to Disk mode.

You can configure the operation of Suspend mode by changing the Suspend Mode option in the Power menu in Setup.

There are four ways of entering Suspend mode:

- ◆ Using the Power switch
- ◆ Using the Power Management keys
- ◆ Using Auto Suspend Timeout
- ◆ Closing the display lid

### **The Power switch**

To enter Suspend mode using the Power switch, you need to configure the Power switch to operate as a Suspend/Resume switch in Setup.

1. Enter the Setup utility by pressing the F2 button when prompted during Startup.

2. Select Power Switch from the Power menu, and set it to 'Suspend/Resume'.
3. Exit from the Setup utility using the 'Exit Saving Changes' option.
4. Use the Power switch to enter and exit Suspend mode.

---

### **Switching computer off**

*When using the Power switch in this way, hold the Power switch down for four seconds to switch the computer off.*

---

### **Power Management keys**

1. To enter Suspend mode, press the <Fn> → <F5> keys.
2. To exit from Suspend mode, press the Power switch.

### **Auto Suspend timeout**

You can set your computer to enter Suspend mode automatically after a given amount of time in Standby mode. This period spent in Standby mode

is called the Auto Suspend Timeout. This can be set to a desired value:

1. Enter the Setup utility by pressing the F2 button when prompted during Startup.
2. Select either the AC Mode Power Savings or the DC Mode Power Savings from the Power menu.
3. Set the Power Savings option to 'Customized'
4. Set the Auto Suspend Timeout to the desired value.
5. Exit from the Setup utility using the 'Exit Saving Changes' option.

---

**Note**

*For the Auto Suspend Timeout option to operate, you need to enter a value in the Standby Timeout option.*

---

**Using the display lid switch**

You can set your computer to enter Suspend mode when you close the display lid.

1. Enter the Setup utility by pressing the F2 button when prompted during Startup.

2. Select Lid Switch from the Power menu, and set it to 'Suspend'.
3. Exit from the Setup utility using the 'Exit Saving Changes' option.

The computer will now enter Suspend mode when you close the display lid. Press the Power switch to resume normal operation.

---

**Suspend mode on a network**

*If using your computer on a network, do not use Suspend mode, otherwise your computer may not remain visible to other computers on the network.*

---

**Windows NT users**

*The Suspend function should not be used with any version of Windows NT.*

---



**Enabling audible 'low battery' warning**

As mentioned in the battery section, your computer gives you an audible warning when the battery is low on charge. This can be enabled in Setup as follows:

1. Enter the Setup utility by pressing the F2 button when prompted during Startup.
2. Select Low Battery Beep from the Power menu, and set it to 'Enabled'.
3. Exit from the Setup utility using the 'Exit Saving Changes' option.

## 5 OPTIONAL DEVICES

It is possible to connect various optional devices to the computer. This chapter provides advice on the types of devices that can be connected, and how to connect them.

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### Switching computer off

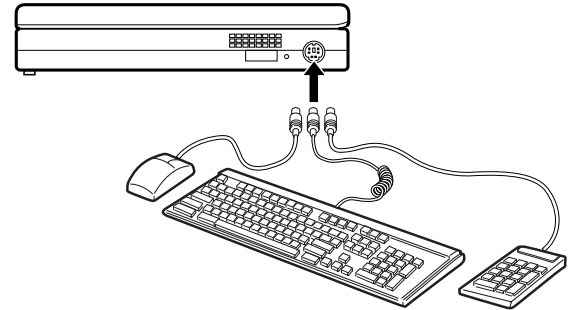
*For most of the procedures in this chapter, we recommend turning the computer off first. Suspend and Standby modes are not the same as 'off'; make sure the machine is properly switched off.*

*When using the Power switch in Suspend/Resume mode, you can switch the computer off by holding the Power switch down for four seconds.*

---

### Connecting external keyboard or mouse

1. Shut down the computer, and turn it off.
2. Connect the device to the socket on the right side of the computer, as shown below.



3. Turn the computer back on.
4. To disconnect the device, turn the computer off and unplug the cable.

---

### Note

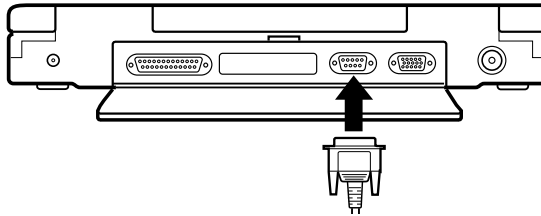
*Since you can only use one mouse at a time, the trackpad will automatically be disabled if you connect an external mouse.*

---

### Connecting a serial device

You can connect a serial device using the computer's RS-232-C port, located on the back of the computer, as shown in the following diagram.

1. Shut down the computer, and turn it off.
2. Connect the device to the serial port on the back of the computer.

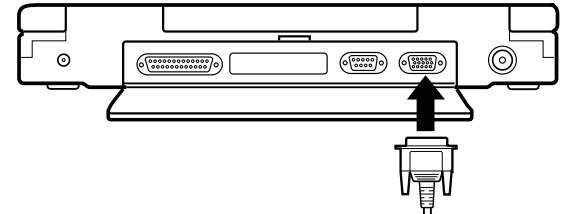


3. Make sure the serial port is configured correctly in Setup. Serial port configuration is part of the I/O device configuration in the Advanced menu.
4. Switch the computer back on.

### Connecting an external monitor

You can connect an external monitor to your computer. It is possible to view both the computer display and an external monitor together, although you can only edit one of the screens at any one time.

1. Shut down the computer, and turn it off.
2. Make sure the monitor is switched off. Connect the monitor to the monitor port on the back of the computer.



3. Switch the computer and the device back on.
4. From the Start menu, select Settings, then Control Panel. Double-click the Display icon to show Display Properties, and click on the CHIPS tab. In the options, click the 'both' button to enable operation of two monitors.

5. Click OK to exit Display Properties.
6. Close the Control Panel (File menu).
7. To toggle between the LCD display and the external monitor, use the <Fn> → <F3> keys.

To disconnect the external monitor, switch the monitor off, *then* shut down the computer, and turn it off.

---

#### Note

*Make sure that the resolution of the monitor is set to that of the computer's LCD display before connecting it, otherwise the display may not appear correctly.*

---

### Connecting a television

You can connect a television to your computer using the composite video socket on the back of the computer. You can view both the display and the television together.

1. Shut down the computer, and turn it off.
2. Make sure the television is switched off. Connect the computer to the composite video input on the television using on the back of the computer, as shown in the following diagram.



Composite Video

3. Switch the computer and the television on.
4. To toggle between the LCD display and the television, use the <Fn> → <F3> keys.

To disconnect the television, switch the television off, *then* shut down the computer, and turn it off.

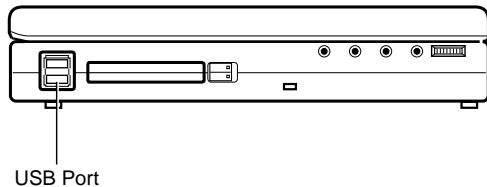
### Universal Serial Bus

The USB is a new way of connecting peripherals, such as monitors, scanners and other input devices to your computer. It has several advantages over serial and parallel ports. Several USB devices can be “daisy-chained” together so that a single connector on your computer can support a range of devices at once. USB devices are “hot-pluggable”; that is, they can be connected and disconnected without turning off the computer. The USB can supply DC power to certain devices, so that they do not need an independent power supply. It is also fast, operating at 12 megabits

per second, which is appropriate for a wide range of applications including video conferencing cameras.

The computer has two USB connectors. The USB port is located on the left side of the computer, as shown below.

Before connecting a USB device, we recommend that you read the documentation provided with the device.



## 6 UPGRADING

### Adding memory

---

Your computer is shipped with 48Mb of memory (S)RAM as standard. This should ensure that most applications currently available will run quickly and efficiently. It is possible however, to add more memory, up to a maximum of 144Mb.

The memory modules used in this computer are SO-DIMMs (Small Outline Dual Inline Memory Modules). There is provision for two SO-DIMMs in the memory compartment. There is already a 32Mb SO-DIMM inserted, which, combined with the 16Mb of memory on the motherboard, gives the standard 48Mb. You can fit any two SO-DIMMS from the available values (8, 16, 32, 64Mb), giving a maximum of 144 Mb of RAM. The two SO-DIMMS do not have to be equal amounts of memory.

When purchasing memory, we recommend that you contact your Mitsubishi dealer. This will ensure that you obtain the correct module.

---

#### Caution - electrostatic discharge

*Memory modules are extremely sensitive to electrostatic discharge, and can easily be damaged by small amounts of static present on the body. To avoid causing damage, it is recommended that you discharge any static electricity by touching something metal before handling memory modules.*

*Also, when handling memory modules, make sure you hold them by the edges, avoiding contact with the chip or the contacts.*

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## Inserting a SO-DIMM

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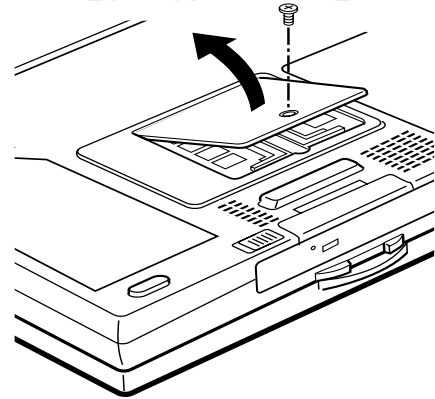
### Caution

*Suspend and Standby modes are not the same as 'off'; make sure the machine is properly switched off.*

*When using the Power switch in Suspend/Resume mode, you can switch the computer off by holding the Power switch down for four seconds.*

---

1. Shut down the computer, and turn it off.
2. Close the lid of the computer.
3. Remove the battery and the AC adapter.
4. Remove the screw securing the memory compartment lid, and lift the lid off. The memory compartment is located on the underside of the computer, as shown in the following diagram.



5. Carefully slot the memory module into the vacant slot in the memory compartment. Push the module firmly into place to insert properly.
6. Replace the memory compartment cover.
7. Switch the machine back on. The computer detects the new memory automatically.
8. Check that the memory has been detected by double-clicking on the System icon in the Control Panel. The amount of RAM being used is displayed at the bottom of the System Properties dialogue.

## Fitting a PC card

---

PC cards (previously PCMCIA), are a useful way of adding functionality to your computer.

In general, there are three types of PC card. These all have the same length and width (85.6mm x 54.0mm), but each has a different thickness, as described in the following table:

Type	Thickness (mm)	Typical usage
I	3.3	Memory
II	5.0	I/O (Modem, LAN etc.)
III	10.5	Mass storage

This computer supports Types I, II and III, as well as the Cardbus and Zoomed Video (ZV) standards.

There are two slots in the card socket, allowing two PC cards to be fitted at once. There are however, restrictions on which type of card can be fitted in each slot. The restrictions are detailed in the following table:

Slot	Cards which can be used
Top	Type I, Type II, ZV, Cardbus
Bottom	Type I, Type II, Type III, Cardbus

In general, you can use a different card in each slot simultaneously. This however does not apply if a Type III card is being used in the bottom slot, in which case there will be no room for a card in the top slot.

When using Windows 95, PC cards are 'hot-pluggable'. That is, you can change a card while the computer is switched on, just as you can with floppy diskettes. This is not the case however with Windows NT. If you are using Windows NT, refer to the note below.

PC cards may become fairly hot during normal use. This is normal, and does not indicate a fault with either the PC card or your computer.



---

Note for Windows NT users

*Cardbus and ZV cards cannot be used with any version of Windows NT.*

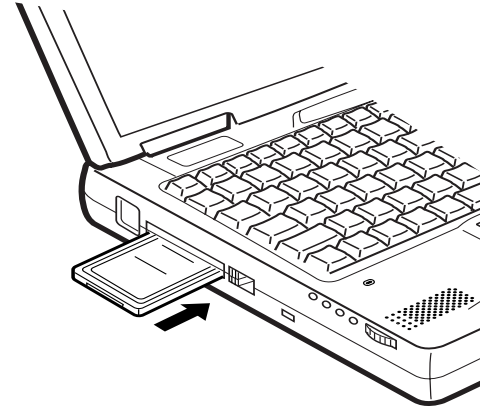
*You must shut the computer down completely to change a PC card when using Windows NT.*

---

### **Inserting a PC card**

If connecting an external device to the PC card, you should switch the device on and plug it into the PC card before inserting the PC card into the slot.

1. Slide the PC card into the required slot, making sure it is aligned correctly. There is usually an arrow on the PC card to indicate which way to insert it. Failing this, the edge with the row of connection holes must go in first. When the card is fully inserted, the eject button to the right of the card should pop outwards. To prevent damage to the button, push it round to the right into the space provided for it.



2. The card should automatically be recognised by the computer. Follow the instructions on screen, or refer to the documentation which came with your PC card to install the necessary driver software.

### **Removing a PC card**

1. Gently turn the eject button back round to the protruding position. Press it in, and the PC card should pop out slightly.
2. Remove the PC card from the slot.

# 7 BIOS SETUP

## What is the BIOS Setup utility?

---

The BIOS (Basic Input/Output System) mediates between the computer's hardware – the processor, memory, and so on – and its software – the operating system and your programs. The BIOS program is kept in permanent, read-only memory or ROM (although if necessary it can be upgraded by an authorised maintainer).

BIOS Setup is a helpful utility that forms part of the BIOS program. It allows you to view and alter the computer's hardware configuration. Configuring the computer is necessary to ensure that the software you use can recognise and exploit the hardware's capabilities.

The current configuration is kept in a special area of memory, called CMOS (Complementary Metal Oxide Semiconductor) memory, and maintained by a battery so that the configuration is preserved even while the computer is switched off.

Your computer arrives already configured, but may need to be configured again after you add or remove add-on options such as memory or expansion cards.

Whenever the computer is turned on, the BIOS power-on self-test (POST) routine tests various hardware components, including memory, and compares the actual configuration of the computer with that recorded in permanent (CMOS) memory.

The BIOS Setup utility is used for the following tasks:

- ◆ Setting the Power Management options
- ◆ Setting security options
- ◆ Enabling the IrDA port
- ◆ Enabling the audio functions
- ◆ Setting options after connecting an external device
- ◆ Checking the memory configuration after fitting additional memory

Using the setup Utility is fairly straightforward; all of the options available are constantly displayed at the bottom of the screen, and there is item-specific help displayed on the right of the screen for whichever item is selected. Since some of the selections in Setup are made using the +/- keys, remember to press <Fn> → <F9> in order to be able to use these keys.

The Setup utility contains the following main headings:

- ◆ Main
- ◆ Advanced
- ◆ Security
- ◆ Power
- ◆ Boot
- ◆ Exit

There are many parameters which can be changed in the Setup utility. These can easily be reviewed by browsing through the Setup utility itself, and are therefore not covered in detail here. There are, however, several important functions which are covered in the following sections.

## **Basic operation of the Setup utility**

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### **Starting BIOS Setup**

To start the BIOS Setup utility:

1. Turn on or restart your computer.
2. Wait until the 'Press F2 key for Setup' message appears on the screen.
3. Press the F2 key.
4. If you have previously defined a Supervisor password, you are prompted for it before BIOS Setup starts.

### **If BIOS Setup starts on its own**

BIOS Setup might start on its own for three reasons:

- ◆ The power-on self-test (POST) detects a configuration error or fault. This may be signalled by one or more POST error messages. If a persistent fault is indicated, make a note of any error messages and the current configuration settings before calling an authorised maintainer.
- ◆ The CMOS battery may be running down. This may cause spurious POST error messages. If this happens every time you turn on the computer, you may have to change the battery. Contact your Mitsubishi dealer to have the CMOS battery renewed.
- ◆ The computer's configuration may have changed, for example by the addition of more system memory or an expansion card. In this case you may have to define the new configuration.

<b>Press</b>	<b>To</b>
F1 or ALT-H	View a general help topic. Press ESC to close the help window.
ESC	Exit the current menu.
LEFT or RIGHT arrow	Select a different menu.
UP or DOWN arrow	Select fields on the current menu.
PLUS (+) or F6 or SPACEBAR	Select the next value for the current field.
MINUS (-) or F5.	Select the previous value for the current field.
ENTER	Execute a command or enter a sub-menu.
HOME or END	Move the cursor to the top or bottom of the current menu.
PAGE UP or PAGE DOWN	Move the cursor to the next or previous page of the current menu.
F9	Restore the default settings for all menus.
F10	Save the changes you've made and exit from BIOS Setup.

## **Control keys**

Use the keys listed in the legend bar at the bottom of the BIOS Setup screen to make your selections or exit the current menu.

Sub-menus are marked by a ► pointer. To display a sub-menu, use the arrow keys to move the cursor to the sub-menu you want, then press ENTER.

Changeable fields are enclosed in square brackets. To select an item, use the arrow keys to move the cursor to the field you want. Then use the PLUS (+) and MINUS (-) keys to select a value for that field.

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### **Caution**

*The default BIOS settings may not be appropriate for your particular system. Make a note of the current settings before pressing F9 or using the Load Setup Defaults command of the Exit menu.*

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**Getting help in BIOS Setup**

You can at any time get general help about the control keys by pressing the F1 key.

The help window on the right-hand side of each menu displays help text for the currently-selected field. It changes as you move the cursor from one field to another.

## **Summary of main options within Setup**

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This section covers a selection of Setup options which are particularly relevant to notebook computers. It is not a list of all the options available in Setup. Default settings are listed where applicable.

### **Power Management setup**

The Power Management can be configured by setting the options in the Power menu. The main options are listed below. For further information refer to Chapter 4, Battery and Power Management, and the Setup utility itself.

#### **Power switch**

The power switch can be set to function as an on/off switch, or as a switch to take the computer in and out of Suspend mode.

The default setting for this option is: On/Off.

#### **Lid switch**

When the display lid is lowered, it activates a switch which can either take the computer into Suspend mode, or turn the display backlight off, depending on the setting of this option.

The default setting for this option is: Backlight off.

#### **Low battery beep**

If this option is enabled, the computer will emit beeps when the battery is low, as described in 'If the battery is running out' section in the Battery chapter.

#### **DC mode power savings**

This option contains a submenu which gives you full control over the DC Power Management settings.

The default setting for this option is: Disabled.

**AC mode power savings**

This option contains a submenu which gives you full control over the AC Power Management settings.

**Security function setup**

The main Security options are as follows:

**Set supervisor password**

This option allows you to set a password which can be used by a supervisor to access the Setup utility. Setting this password also allows a user password to be set.

**Set user password**

This option allows you to set a password for a user to access the system. If this password is set and enabled (see Password on Boot) a user will be prompted for a password before Windows starts.

**Password on boot**

This option allows you to enable or disable the user password.

**IrDA setup**

The infra-red facility can be configured in the I/O Device Configuration menu which is a submenu of the Advanced menu. You can control how the IR port is enabled, and the mode of operation of the port. For further information refer to the documentation supplied with your IR device, and to the Setup utility itself.



## 8 TROUBLESHOOTING

This chapter offers advice if you suspect a fault with your computer. It is concerned mainly with problems caused by the computer itself; problems more often arise from other sources such as your operating system or application software.

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### **If you are apprehensive**

*Make a note of any of the symptoms, error codes, displayed messages and so on, then turn off the computer and unplug all power cords before consulting your supplier or maintenance provider.*

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### **If something goes wrong ...**

- ◆ Read this chapter.
- ◆ Review the rest of this manual to make sure you are operating the computer correctly.
- ◆ Read the on-line Help.
- ◆ Consult your Mitsubishi Electric PC supplier or authorised maintainer.

**System Unit**

<b>Problem</b>	<b>Possible solutions</b>
Cannot switch system on	<ul style="list-style-type: none"> <li>◆ If using internal battery, it may need to be charged.</li> <li>◆ If using AC adapter, check that it is connected properly and switched on.</li> </ul>

**Floppy Diskette Drive (FDD)**

<b>Problem</b>	<b>Possible solutions</b>
Drive does not work	<ul style="list-style-type: none"> <li>◆ Check that diskette is properly inserted.</li> <li>◆ Check that diskette is properly formatted.</li> <li>◆ Check that the drive is properly inserted, or if being used externally, that the parallel cable is properly connected.</li> <li>◆ Check that the FDD controller is Enabled in Setup (Refer to Chapter 7 and the Setup utility itself).</li> </ul>
Diskette cannot be read	<ul style="list-style-type: none"> <li>◆ If the system has recently been subject to an unusually high or low temperature, allow at least one hour for the system to reach the new ambient temperature.</li> <li>◆ If the system has recently been moved from a high temperature to a lower temperature, there may be condensation present. Allow at least an hour for it to evaporate.</li> </ul>

**Hard Disk Drive (HDD)**

<b>Problem</b>	<b>Possible solutions</b>
System does not boot from disk	<ul style="list-style-type: none"> <li>◆ Check that the Setup settings are correct. (Refer to Chapter 7 and the Setup utility itself).</li> <li>◆ Certain Windows system files may have become corrupted. Use the Emergency Windows start-up diskette which you created during the 'Backing up the pre-installed software' process in Chapter 1.</li> <li>◆ Make sure that the FDD does not have a diskette in it.</li> </ul>
Windows does not start correctly	<ul style="list-style-type: none"> <li>◆ Start-up in Windows Safe Mode by pressing &lt;F8&gt; at the "Starting Windows 95" prompt.</li> </ul>
HDD contents cannot be read	<ul style="list-style-type: none"> <li>◆ If the system has recently been subject to an unusually high or low temperature, allow at least one hour for the system to reach the new ambient temperature.</li> <li>◆ If the system has recently been moved from a high temperature to a lower temperature, there may be condensation present. Allow at least an hour for it to evaporate.</li> </ul>

**CD-ROM**

<b>Problem</b>	<b>Possible solutions</b>
Drive does not work	<ul style="list-style-type: none"> <li>◆ Check that the drive is properly fitted in the bay.</li> <li>◆ Check that the CD is inserted correctly.</li> </ul>
Contents of CD cannot be read	<ul style="list-style-type: none"> <li>◆ Check that the CD is free from fingerprints and dust.</li> </ul>

**Battery**

<b>Problem</b>	<b>Possible solutions</b>
Battery will not fully charge, or battery life is very short	<ul style="list-style-type: none"> <li>◆ Make sure you are charging the battery correctly. Refer to Chapter 4.</li> <li>◆ Replace the battery. The battery is a consumable item, and will become less efficient after it has been charged between 300 and 500 times.</li> </ul>

**LCD screen**

<b>Problem</b>	<b>Possible solutions</b>
Screen appears blank	<ul style="list-style-type: none"> <li>◆ Check whether the Power Management facility is operating. If so, exit from Power Management. Refer to Chapter 4.</li> </ul>

**Serial interface**

<b>Problem</b>	<b>Possible solutions</b>
Serial device does not work	<ul style="list-style-type: none"> <li>◆ Check the cable connection.</li> <li>◆ Check that the Setup settings are correct. Refer to Chapter 7 and the Setup utility itself.</li> <li>◆ Check that required device drivers are installed.</li> </ul>

**PC cards**

<b>Problem</b>	<b>Possible solutions</b>
PC card does not work	<ul style="list-style-type: none"> <li>◆ Check that the card is fitted properly. Refer to the instructions in Chapter 6.</li> <li>◆ If the PC card requires an external cable e.g. for connection to telephone line, check that this is connected correctly. Refer to the documentation which came with the PC card.</li> <li>◆ Check that the PC card device driver software is properly installed. Again, refer to the relevant documentation.</li> <li>◆ In general, Suspend mode should not be used with Type II (communications) PC cards, as it affects the remote connection. If Suspend mode has been activated, this may cause a PC card to operate incorrectly. Restart the computer.</li> </ul>

**Expansion memory**

<b>Problem</b>	<b>Possible solutions</b>
System operates incorrectly after fitting expansion memory	<ul style="list-style-type: none"> <li>◆ Check that you have installed a SO-DIMM which is recommended by Mitsubishi. For details contact your Mitsubishi dealer.</li> <li>◆ Check that the SO-DIMM has been correctly inserted, as outlined in Chapter 6.</li> </ul>

**External keyboard, 10-key pad, mouse**

<b>Problem</b>	<b>Possible solutions</b>
External device does not work	<ul style="list-style-type: none"> <li>◆ Check that the device has been connected properly. Refer to Chapter 5.</li> <li>◆ If using a mouse, remove the ball from inside the mouse, and clean it.</li> </ul>

**Printer**

<b>Problem</b>	<b>Possible solutions</b>
Printer does not print	<ul style="list-style-type: none"> <li>◆ Check the printer cables and connections.</li> <li>◆ Make sure the printer port is configured correctly in Setup. Port configuration is part of I/O Device Configuration in the Advanced menu.</li> <li>◆ Check that the printer driver software is properly installed. Check with the documentation which came with your printer for further information.</li> </ul>

**Trackpad**

<b>Problem</b>	<b>Possible solutions</b>
Trackpad does not work at all	<ul style="list-style-type: none"><li>◆ Make sure the PS/2 mouse is “Enabled” in the Advanced menu in Setup.</li><li>◆ If a PS/2 mouse is connected as an external device, the trackpad is automatically disabled. You cannot use two pointing devices simultaneously.</li><li>◆ Make sure there is nothing metallic on or near the trackpad.</li></ul>
Trackpad responds slowly	<ul style="list-style-type: none"><li>◆ Make sure both the trackpad and your finger are clean and dry.</li></ul>

**External display**

<b>Problem</b>	<b>Possible solutions</b>
Nothing appears on the external display	<ul style="list-style-type: none"> <li>◆ Check that the display is powered up.</li> <li>◆ Make sure the brightness and contrast controls are adjusted properly.</li> <li>◆ Press &lt;Fn&gt; &amp; &lt;F3&gt; to change between the LCD screen and the external display.</li> </ul>
Cannot switch from the LCD screen to the external display	<ul style="list-style-type: none"> <li>◆ Check that the display resolution and refresh rate settings are the same for each screen. These can be set in the Display Properties dialog in the Windows Control Panel.</li> <li>◆ Check that the external display supports the resolution which the LCD is currently using.</li> </ul>
Cannot obtain high resolution (> 800x600 pixels) on either screen	<ul style="list-style-type: none"> <li>◆ Make sure that a high resolution (i.e. 1024x768 pixel) driver has been installed.</li> </ul>
The display is shifted or distorted	<ul style="list-style-type: none"> <li>◆ Make sure the resolution capability of the external monitor is equal to (or better than) that of the LCD display. Refer to Chapter 5 for further information.</li> </ul>



**Infra-red port**

<b>Problem</b>	<b>Possible solutions</b>
The infra-red feature does not work	<ul style="list-style-type: none"> <li>◆ Make sure the IR Monitor in the Windows Control Panel is configured correctly.</li> <li>◆ Make sure the IR port is configured correctly in the Advanced menu in Setup.</li> <li>◆ Make sure the correct IrDA driver software is installed.</li> <li>◆ Make sure that the IrDA transmitter is clean.</li> <li>◆ Make sure that there are no obstructions between the two devices, and that the two devices are positioned so that they are 'visible' to each other.</li> </ul>
Erroneous data is transmitted and/or received	<ul style="list-style-type: none"> <li>◆ Make sure that light from a lightbulb, or sunlight is not interfering with the signal path.</li> <li>◆ Make sure that other domestic remote controls are not interfering with the IR signal.</li> </ul>

**Microphones, headphones, audio**

<b>Problem</b>	<b>Possible solutions</b>
No sound comes from the speakers	<ul style="list-style-type: none"> <li>◆ Adjust the volume control. The location of the volume control is shown in the Pictorial guide.</li> <li>◆ Check Sound is enabled in Setup. The Audio options menu is part of the Advanced menu.</li> <li>◆ Check that there are no headphones in the headphone socket. If this is the case, then the speakers are automatically disconnected.</li> </ul>
The record audio facility does not work properly	<ul style="list-style-type: none"> <li>◆ Make sure that the microphone is connected properly, and that it is switched on.</li> <li>◆ Make sure that the audio source is connected properly.</li> </ul>
The audio replay facility does not work properly	<ul style="list-style-type: none"> <li>◆ Make sure that the audio source is connected properly.</li> <li>◆ Check that there are no headphones in the headphone socket. If this is the case, then the speakers are automatically disconnected.</li> </ul>

**USB connection**

<b>Problem</b>	<b>Possible solutions</b>
A device connected using the USB port does not work	<ul style="list-style-type: none"> <li>◆ Make sure the USB cable is connected properly.</li> <li>◆ Make sure the device is powered up.</li> </ul>

# A APPENDIX

## I/O Address map

<b>Address</b>	<b>Function</b>
0000 - 000F	Controller
0020 - 0021	Interrupt controller
0040 - 0043	Timer 1
0060	Keyboard controller
0061	Speaker
0062, 0064, 0066	Keyboard controller command and status
0070 - 0071	Real time clock & NMI mask
0072 - 0073	Extended CMOS access
0080	Diagnostic port
0081 - 008F	DMA page register
00A0 - 00A1	Interrupt controller
00B2 - 00B3	Power Management control
00C0 - 00DF	DMA controller

<b>Address</b>	<b>Function</b>
00E4 - 00E7	Power control
00F0 - 00FF	Co-processor
0170 - 0177	CD-ROM select
01F0 - 01F7	HDD select
0220 - 022F	Audio (default)
0240 - 024F	Audio (default)
0260 - 026F	Audio (default)
0280 - 028F	Audio (default)
0278 - 027B	Parallel port (LPT2)
02E8 - 02EF	Serial port -4 (COM4)
02F8 - 02FF	IrDA port (default)
0376	Select
0378 - 037F	Parallel port -1
03B0 - 03BB	VDU controller
03BC - 03BF	Parallel port -3 (default)

<b>Address</b>	<b>Function</b>
03C0 - 03DF	Video controller
03E8 - 03EF	Serial port -3 <sup>1</sup>
03F0 - 03F5, 03F7	FDD controller
03F6	HDD select
03F8 - 03FF	Serial port -1 (COM1) (default) <sup>1</sup>
040B	DMA controller
0480 - 048F	DMA controller
04D0 - 04D1	System control
0778 - 077B	Parallel port (Enhanced control port)
0800 - 0807	Audio controller
0CF8 - 0CFF	PCI configuration register
1000 - 101F	USB control port
2180 - 218F	System control
8000 - 803F	System control
FCF0 - FCF7	PCI IDE controller
FCF8 - FCFF	PCI IDE controller

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<sup>1</sup> Or IrDA port

**IRQ table**

<b>Priority</b>	<b>IRQ</b>	<b>Interrupt type</b>
1	SMI	Power management unit
2	NMI	NMI parity error / I/O channel error
3	IRQ0	Timer / Counter 0 output
4	IRQ1	IRQ1 keyboard
4	IRQ2	IRQ2 reserved, cascade interrupt from slave PIC
5	IRQ8	Real time clock
6	IRQ9	PC card controller / USB
7	IRQ10	Reserved
8	IRQ11	Reserved
9	IRQ12	Mouse
10	IRQ13	Co-processor
11	IRQ14	HDD controller
12	IRQ15	Reserved <sup>2</sup>
13	IRQ3	IrDA port

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<sup>2</sup> If a CD-ROM drive is fitted, it is allocated IRQ15

14	IRQ4	Serial port -1
15	IRQ5	Audio
16	IRQ6	FDD
17	IRQ7	Parallel port -3

**DMA channel**

<b>Channel</b>	<b>Address</b>	<b>Data width</b>	<b>System resource</b>
0	0087	8-bit	Audio <sup>3</sup>
1	0083	8-bit	
2	0081	8-bit	FDD
3	0082	8-bit	
4	Cascade	–	Cascade
5	008B	16-bit	Audio <sup>1</sup>
6	0089	16-bit	
7	008A	16-bit	

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<sup>3</sup> The DMA channel of audio can be changed in Setup



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