TECRA

User's Manual
9000

Tecra

Choose freedom.

TOSHIBA

Copyright

Toshiba Tecra 9000 Portable Personal Computer User's Manual

First edition August 2001

Disclaimer

This manual has been validated and reviewed for accuracy. The instructions and descriptions it contains are accurate for the Toshiba Tecra 9000 Portable Personal Computer at the time of this manual's production. However, succeeding computers and manuals are subject to change without notice. Toshiba assumes no liability for damages incurred directly or indirectly from errors, omissions or discrepancies between the computer and the manual.

Trademarks

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Intel, Pentium and LAN Desk are registered trademarks of Intel Corporation.

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Bluetooth is a trademark owned by its proprietor and used by Toshiba under license.

i.LINK is a trademark of Sony Corporation.

Other trademarks and registered trademarks not listed above may be used in this manual.

EU Declaration of Conformity

This product carries the CE-Mark in accordance with the related European Directives. Responsibility for CE-Marking rests with Toshiba Europe GmbH, Hammfelddamm 8, 41460 Neuss, Germany.

Information to the wireless LAN User

Wireless Interoperability

The Toshiba Wireless LAN Mini PCI Card products are designed to be interoperable with any wireless LAN product that is based on Direct Sequence Spread Spectrum (DSSS) radio technology, and is compliant to:

■ The IEEE 802.11 Standard on Wireless LANs (Revision B), as defined and approved by the Institute of Electrical and Electronics Engineers.

■ The Wireless Fidelity (WiFi) certification as defined by the WECA Wireless Ethernet Compatibility Alliance.

Wireless LAN and your Health

Wireless LAN products, like other radio devices, emit radio frequency electromagnetic energy. The level of energy emitted by Wireless LAN devices however is far much less than the electromagnetic energy emitted by wireless devices like for example mobile phones.

Because Wireless LAN products operate within the guidelines found in radio frequency safety standards and recommendations, Toshiba believes Wireless LAN is safe for use by consumers. These standards and recommendations reflect the consensus of the scientific community and result from deliberations of panels and committees of scientists who continually review and interpret the extensive research literature.

In some situations or environments, the use of Wireless LAN may be restricted by the proprietor of the building or responsible representatives of the organisation. These situations may for example include:

■ Using the Wireless LAN equipment on board of aeroplanes, or

■ In any other environment where the risk of interference to other devices or services is perceived or identified as harmful.

If you are uncertain of the policy that applies on the use of wireless devices in a specific organisation or environment (e.g. airports), you are encouraged to ask for authorisation to use the Wireless LAN device prior to turning on the equipment.

Regulatory Information

The Toshiba Wireless LAN Mini PCI Card must be installed and used in strict accordance with the manufacturer's instructions as described in the user documentation that comes with the product. This device complies with the following radio frequency and safety standards.

Europe – EU Declaration of Conformity

This device complies with the essential requirements of the R&TTE Directive 1999/5/EC with essential test suites as per standards:

■ EN 60950 Safety of Information Technology equipment

■ ETS 300 328 Technical requirements for radio equipment

■ ETS 300 826 General EMC requirements for radio equipment.

België/Belgique	For outdoor usage only channel 10 (2457 MHz) and 11 (2462 MHz) is allowed.
	For private usage outside buildings across public grounds over less than 300m no special registration with IBPT/BIPT is required. Registration to IBPT/BIPT is required for private usage outside buildings across public grounds over more than 300m. An IBPT/BIPT license is required for public usage outside building.
	For registration and license please contact IBPT/BIPT.
	Gebruik buiten gebouw alleen op kanalen 10 (2457 MHz) en 11 (2462 MHz). Voor privé-gebruik buiten gebouw over publieke groud over afstand kleiner dan 300m geen registratie bij BIPT/IBPT nodig; voor gebruik over afstand groter dan 300m is wel registratie bij BIPT/IBPT nodig. Voor publiek gebruik buiten gebouwen is licentie van BIPT/IBPT verplicht. Voor registratie of licentie kunt u contact opnemen met BIPT.
	L'utilisation en extérieur est autorisé sur le canal 10 (2457 MHz) et 11 (2462 Mhz).
	Dans le cas d'une utilisation privée, à l'extérieur d'un bâtiment, au-dessus d'un espace public, aucun enregistrement n'est nécessaire pour une distance de moins de 300m. Pour une distance supérieure à 300m un enregistrement auprès de l'IBPT est requise. Pour une utilisation publique à l'extérieur de bâtiments, une licence de l'IBPT est requise. Pour les enregistrements et licences, veuillez contacter l'IBPT.
Deutschland:	License required for outdoor installations. Check with reseller for procedure to follow
	Anmeldung im Outdoor-Bereich notwendig, aber nicht genehmigungspflichtig. Bitte mit Händler die Vorgehensweise abstimmen.

France:	Restricted frequency band: only channels 10 and 11 (2457 MHz and 2462 MHz respectively) may be used in France. License required for every installation, indoor and outdoor installations. Please contact ART for procedure to follow.
	Bande de fréquence restreinte : seuls les canaux 10 à 11 (2457 et 2462 MHz respectivement) doivent être utilisés en France.
	Toute utilisation, qu'elle soit intérieure ou extérieure, est soumise à autorisation. Vous pouvez contacter l'Autorité de Régulation des Télécommuniations (http://www.art-telecom.fr) pour la procédure à suivre.
Italia:	License required for indoor use. Use with outdoor installations not allowed
	E'necessaria la concessione ministeriale anche per l'uso interno.
	Verificare con i rivenditori la procedura da seguire. L'uso per installazione in esterni non e' permessa.
Nederland	License required for outdoor installations. Check with reseller for procedure to follow
	Licentie verplicht voor gebruik met buitenantennes. Neem contact op met verkoper voor juiste procedure

Caution: Exposure to Radio Frequency Radiation.

The radiated output power of the Toshiba Wireless LAN Mini PCI Card is far below the FCC radio frequency exposure limits. Nevertheless, the Toshiba Wireless LAN Mini PCI Card shall be used in such a manner that the potential for human contact during normal operation is minimised. When using this device in combination with Wireless LAN Outdoor Antenna products, a certain separation distance between antenna and nearby persons has to be kept to ensure RF exposure compliance. The distance between the antennas and the user should not be less than 5.0cm.

Refer to the Regulatory Statements as identified in the documentation that comes with those products for additional information.

The Toshiba Wireless LAN Mini PCI Card is far below the FCC radio frequency exposure limits.

Nevertheless, it is advised to use the Toshiba Wireless LAN Mini PCI Card in such a manner that human contact during normal operation is minimised.

Interference Statement

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation.

This equipment generates, uses, and can radiate radio frequency energy. If not installed and used in accordance with the instructions, it may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation.

If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try and correct the interference by one or more of the following measures:

■ Reorient or relocate the receiving antenna.

■ Increase the distance between the equipment and the receiver.

■ Connect the equipment to an outlet on a circuit different from that to which the receiver is connected.

■ Consult the dealer or an experienced radio/TV technician for help.

Toshiba is not responsible for any radio or television interference caused by unauthorised modification of the devices included with this Toshiba Wireless LAN Mini PCI Card, or the substitution or attachment of connecting cables and equipment other than specified by Toshiba .

The correction of interference caused by such unauthorised modification, substitution or attachment will be the responsibility of the user.

Taiwan

Article 14	Unless approved, for any model accredited low power radio frequency electric machinery, any company, trader or user shall not change the frequency, increase the power or change the features and functions of the original design.
Article 17	Any use of low power radio frequency electric machinery shall not affect the aviation safety and interfere with legal communications. In event that any interference is found, the use of such electric machinery shall be stopped immediately, and reusing of such products can be resumed until no interference occurs after improvement.
	The legal communications mentioned in the above item refer to radio communications operated in accordance with telecommunication laws and regulations.
	Low power radio frequency electric machinery shall resist against interference from legal communications or from industrial, scientific and medical radio emission electric machinery.

Using this equipment in Japan

In Japan, the frequency bandwidth of 2,400~2,483.5MHz for second generation low-power data communication systems such as this equipment overlaps that of mobile object identification systems (premises radio station and specified low-power radio station).

1. Sticker

Please put the following sticker on devices incorporating this product.

In the frequency bandwidth of this equipment, industrial device, scientific device, medical device like microwave oven, licensed premises radio station and non-licensed specified low-power radio station for mobile object identification system (RF-ID) that is used in product line of factories, (Other Radio Stations) are used.

1. Please make sure before using this equipment that no Other Radio Stations are used in the neighbourhood.

2. In case that RF interference occurs to Other Radio Stations from this equipment, please change promptly the frequency for use, place to use, or stop emitting Radio.

3. Please contact TOSHIBA Direct PC if you have a problem, such as interference from this equipment to Other Radio Stations.

2. Indication

The indication shown below appears on this equipment.

(1)   (2)   (3)

2.4	DS	4
■	■	■

(4)

(1) 2.4 :   This equipment uses a frequency of 2.4GHz.

(2) DS :   This equipment uses DS-SS modulation.

(3) 4 :   The interference range of this equipment is less than 40m.

(4) ■■■ ■■■ ■■■ :   This equipment uses a frequency bandwidth from 2,400mhz to 2,483.5MHz.

It is impossible to avoid the band of mobile object identification systems.

TOSHIBA Direct PC

Monday – Friday :	10:00 – 17:00
Toll Free Tel :	0120-13-1100
Direct Dial :	03-3457-5916
Fax :	03-5444-9450

Electronic communication device authorisation

This device obtains the Technical Conditions Compliance Approval, and it belongs to the device class of radio equipment of low-power data communication system radio station stipulated in the Telecommunications Business Law.

The following restrictions apply:

■ Do not disassemble or modify the device.

■ Do not remove the authorisation label from the device.

Device Authorisation

This device obtains the Technical Regulation Conformity Certification, and it belongs to the device class of radio equipment of low-power data communication system radio station stipulated in the Radio Law of Japan.

The following restrictions apply:

■ Do not disassemble of modify the device.

■ Do not remove the authorisation label from the device.

Information to Bluetooth users

Bluetooth wireless technology Interoperability

Bluetooth™ Card from Toshiba are designed to be interoperable with any product with Bluetooth wireless technology that is based on Frequency Hopping Spread Spectrum (FHSS) radio technology, and is compliant to:

■ Bluetooth Specification Ver.1.1, as defined and approved by The Bluetooth Special Interest Group.

■ Logo certification with Bluetooth wireless technology as defined by The Bluetooth Special interest Group.

Bluetooth wireless technology and your Health

The products with Bluetooth wireless technology, like other radio devices, emit radio frequency electromagnetic energy. The level of energy emitted by devices with Bluetooth wireless technology however is far much less than the electromagnetic energy emitted by wireless devices like for example mobile phones.

Because products with Bluetooth wireless technology operate within the guidelines found in radio frequency safety standards and recommendations, Toshiba believes Bluetooth wireless technology is safe for use by consumers. These standards and recommendations reflect the consensus of the scientific community and result from deliberations of panels and committees of scientists who continually review and interpret the extensive research literature.

In some situations or environments, the use of Bluetooth wireless technology may be restricted by the proprietor of the building or responsible representatives of the organisation. These situations may for example include:

■ Using the equipment with Bluetooth wireless technology on board of aeroplanes, or

■ In any other environment where the risk of interference to other devices or services is perceived or identified as harmful.

If you are uncertain of the policy that applies on the use of wireless devices in a specific organisation or environment (e.g. airports), you are encouraged to ask for authorisation to use the device with Bluetooth wireless technology prior to turning on the equipment.

Regulatory statements

General

This product complies with any mandatory product specification in any country where the product is sold. In addition, the product complies with the following.

European Union (EU) and EFTA

This equipment complies with the R&TTE directive 1999/5/EC and has been provided with the CE mark accordingly.

United States of America and Canada

Tested To Comply With FCC Standards FOR HOME OR OFFICE USE. See FCC 47CFR part 15.19(b)(2)

This device complies with part15 of the FCC rules and with RSS-210 / RSS-139 of the Industry Canada. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Note that any changes or modifications to this equipment not expressly approved by the manufacturer may void the FCC authorisation to operate this equipment.

Canada

IC Notice

To prevent radio interference to the licensed service, this device is intended to be operated indoors and away from windows to provide maximum shielding. Equipment that is installed outdoors is subject to licensing.

Pour empêcher un brouillage radioélectrique au service faisant l'objet d'une licence, cet appareil doit être utilisé à l'interieur et loin des fenêtres afin de founir un écran de blindage maximal. Au cas aù un installation en plain air, le materiel doit faire l'objet d'une licence.

Caution

FCC notice "Declaration of Conformity Information"

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

1. Reorient or relocate the receiving antenna.
2. Increase the separation between the equipment and receiver.
3. Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

Consult the dealer or an experienced radio/TV technician for help.

WARNING: Only peripherals complying with the FCC class B limits may be attached to this equipment. Operation with non-compliant peripherals or peripherals not recommended by Toshiba is likely to result in interference to radio and TV reception. Shielded cables must be used between the external devices and the computer's or expansion unit's external monitor port, parallel port, serial port, USB port and microphone jack. A cable with a core must be used between the computer's LAN jack and LAN hub and between computer's modem jack and telephone jack. Changes or modifications made to this equipment, not expressly approved by Toshiba or parties authorized by Toshiba could void the user's authority to operate the equipment.

FCC conditions

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:

1. This device may not cause harmful interference.
2. This device must accept any interference received, including interference that may cause undesired operation.

Contact

Address: Toshiba America Information Systems, Inc.
9740 Irvine Boulevard, Irvine,
California 92618-1697

Telephone: (949) 583-3000

EU Declaration of Conformity

Toshiba declares, that the product: PT900U/PT900E/PT900A/PT900L conforms to the following Standards:

Supplementary Information:

"The product complies with the requirements of the Low Voltage Directive 73/23/EEC and the EMC Directive 89/336/EEC and/or the R&TTE Directive 1999/05/EEC."

This product is carrying the CE-Mark in accordance with the related European Directives. Responsible for CE-Marking is Toshiba Europe, Hammfelddamm 8, 41460 Neuss, Germany.

Using Bluetooth™ equipment in Japan

In Japan, the frequency bandwidth of 2,400~2,483.5MHz for second generation low-power data communication systems such as this equipment overlaps that of mobile object identification systems (premises radio station and specified low-power radio station).

1. Sticker

Please put the following sticker on devices incorporating this product.

> In the frequency bandwidth of this equipment, industrial device, scientific device, medical device like microwave oven, licensed premises radio station and non-licensed specified low-power radio station for mobile object identification system (RF-ID) that is used in product line of factories, (Other Radio Stations) are used.
>
> 1. Please make sure before using this equipment that no Other Radio Stations are used in the neighbourhood.
> 2. In case that RF interference occurs to Other Radio Stations from this equipment, please change promptly the frequency for use, place to use, or stop emitting Radio.
> 3. Please contact TOSHIBA Direct PC if you have a problem, such as interference from this equipment to Other Radio Stations.

2. Indication

The indication shown below appears on this equipment.

(1) 2.4 : This equipment uses a frequency of 2.4GHz.

(2) FH : This equipment uses FH-SS modulation.

(3) 4 : The interference range of this equipment is less than 10m.

(4) ███ ███ ███ : This equipment uses a frequency bandwidth from 2,400mhz to 2,483.5MHz.

It is impossible to avoid the band of mobile object identification systems.

TOSHIBA Direct PC

Monday – Friday :	10:00 – 17:00
Toll Free Tel :	0120-13-1100
Direct Dial :	03-3457-5916
Fax :	03-5444-9450

Electronic communication device authorisation

This device obtains the Technical Conditions Compliance Approval, and it belongs to the device class of radio equipment of low-power data communication system radio station stipulated in the Telecommunications Business Law.

The following restrictions apply:

■ Do not disassemble or modify the device.

■ Do not remove the authorisation label from the device.

Device Authorisation

This device obtains the Technical Regulation Conformity Certification, and it belongs to the device class of radio equipment of low-power data communication system radio station stipulated in the Radio Law of Japan.

The following restrictions apply:

■ Do not disassemble or modify the device.

■ Do not remove the authorisation label from the device.

Toshiba DVD-ROM drive SD-C2502** safety instruction
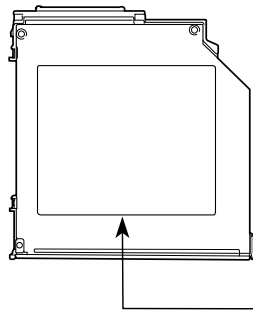
** means any letters or numbers.

> *The DVD-ROM drive employs a laser system. To ensure proper use of this product, please read this instruction manual carefully and retain for future reference. Should the unit ever require maintenance, contact an authorised service location.*
>
> *Use of controls, adjustments or the performance of procedures other than those specified may result in hazardous radiation exposure.*
>
> *To prevent direct exposure to the laser beam, do not try to open the enclosure.*

Location of the required label

PRODUCT IS CERTIFIED BY THE MANUFACTURER TO COMPLY WITH DHHS RULES 21 CFR SUBCHAPTER J APPLICABLE AT THE DATE OF MANUFACTURE.

MANUFACTURED:

TOSHIBA CORPORATION
1-1, SHIBAURA 1-CHOME
MINATO-KU, TOKYO 105-8001,
JAPAN

CLASS 1 LASER PRODUCT
LASERSCHUTZKLASSE 1
PRODUKT
TO EN60825

CAUTION: *This appliance contains a laser system and is classified as a "CLASS 1 LASER PRODUCT." To use this model properly, read the instruction manual carefully and keep this manual for your future reference. In case of any trouble with this model, please contact your nearest "AUTHORISED service station." To prevent direct exposure to the laser beam, do not try to open the enclosure.*

CAUTION: *USE OF CONTROLS OR ADJUSTMENTS OR PERFORMANCE OF PROCEDURES OTHER THAN THOSE SPECIFIED IN THE OWNER'S MANUAL MAY RESULT IN HAZARDOUS RADIATION EXPOSURE.*

Matsushita CD-R/RW drive UJDA340** safety instruction

** means any letters or numbers.

The CD-R/RW drive employs a laser system. To ensure proper use of this product, please read this instruction manual carefully and retain for future reference. Should the unit ever require maintenance, contact an authorised service location.

Use of controls, adjustments or the performance of procedures other than those specified may result in hazardous radiation exposure.

To prevent direct exposure to the laser beam, do not try to open the enclosure.

Location of the required label

COMPLIES WITH FDA RADIATION PERFORMANCE STANDARDS, 21 CFR SUBCHAPTER J.

MANUFACTURED:

Manufactured by
Kyushu Matsushita Electric Co., Ltd.
1-62 4-Chome Minoshima, Hakata-Ku
Fukuoka,Japan

CLASS 1 LASER PRODUCT
LASERSCHUTZKLASSE 1
PRODUKT
TO EN60825

CAUTION: *This appliance contains a laser system and is classified as a "CLASS 1 LASER PRODUCT." To use this model properly, read the instruction manual carefully and keep this manual for your future reference. In case of any trouble with this model, please contact your nearest "AUTHORISED service station." To prevent direct exposure to the laser beam, do not try to open the enclosure.*

CAUTION: *USE OF CONTROLS OR ADJUSTMENTS OR PERFORMANCE OF PROCEDURES OTHER THAN THOSE SPECIFIED IN THE OWNER'S MANUAL MAY RESULT IN HAZARDOUS RADIATION EXPOSURE.*

Matsushita CD-RW/DVD-ROM drive UJDA710** safety instruction
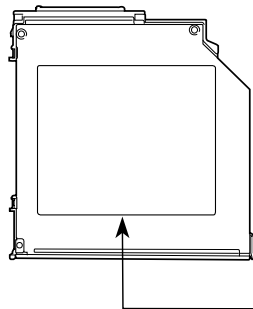
** means any letters or numbers.

The CD-RW/DVD-ROM drive employs a laser system. To ensure proper use of this product, please read this instruction manual carefully and retain for future reference. Should the unit ever require maintenance, contact an authorised service location.

Use of controls, adjustments or the performance of procedures other than those specified may result in hazardous radiation exposure.

To prevent direct exposure to the laser beam, do not try to open the enclosure.

Location of the required label

COMPLIES WITH FDA RADIATION PERFORMANCE STANDARDS, 21 CFR SUBCHAPTER J.

MANUFACTURED:

Manufactured by
Kyushu Matsushita Electric Co., Ltd.
1-62 4-Chome Minoshima, Hakata-Ku
Fukuoka,Japan

CLASS 1 LASER PRODUCT
LASERSCHUTZKLASSE 1
PRODUKT
TO EN60825

CAUTION: *This appliance contains a laser system and is classified as a "CLASS 1 LASER PRODUCT." To use this model properly, read the instruction manual carefully and keep this manual for your future reference. In case of any trouble with this model, please contact your nearest "AUTHORISED service station." To prevent direct exposure to the laser beam, do not try to open the enclosure.*

CAUTION: *USE OF CONTROLS OR ADJUSTMENTS OR PERFORMANCE OF PROCEDURES OTHER THAN THOSE SPECIFIED IN THE OWNER'S MANUAL MAY RESULT IN HAZARDOUS RADIATION EXPOSURE.*

TEAC DVD-ROM drive DV-28E** safety instruction
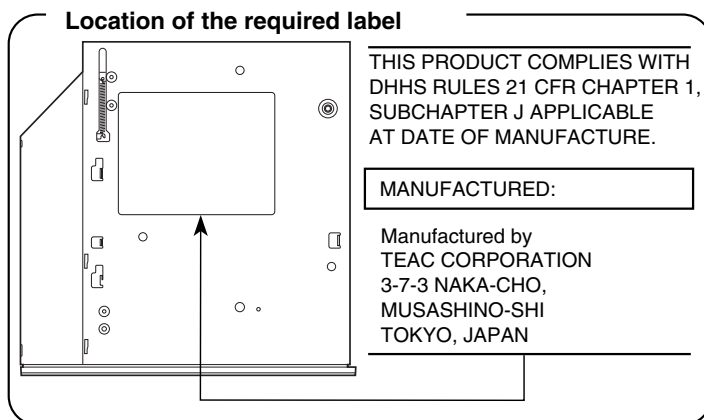
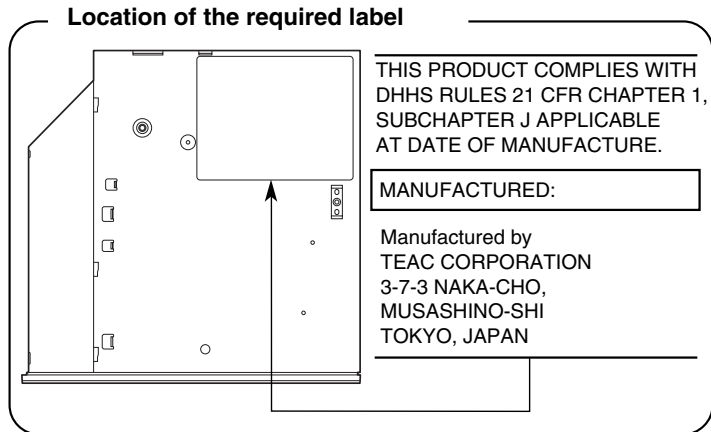** means any letters or numbers.

⚠️ *This product has been designed and manufactured according to FDA regulations "title 21. CFR. chapter 1, subchapter J. based on the radiation Control for Health and Safety Act of 1968," and is classified as a class 1 laser product. There is no hazardous invisible laser radiation confined in the protective housings.*

The label required in this regulation is shown below.

Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

	Optical pickup
Type:	PU-2200
Manufacturer:	TEAC CORPORATION
Laser output:	Less than 0.25m W on the objective lens
Wavelength:	795nm.

Location of the required label

THIS PRODUCT COMPLIES WITH DHHS RULES 21 CFR CHAPTER 1, SUBCHAPTER J APPLICABLE AT DATE OF MANUFACTURE.

MANUFACTURED:

Manufactured by
TEAC CORPORATION
3-7-3 NAKA-CHO,
MUSASHINO-SHI
TOKYO, JAPAN

CLASS 1 LASER PRODUCT
LASERSCHUTZKLASSE 1
PRODUKT
TO EN60825

CAUTION: *This appliance contains a laser system and is classified as a "CLASS 1 LASER PRODUCT." To use this model properly, read the instruction manual carefully and keep this manual for your future reference. In case of any trouble with this model, please contact your nearest "AUTHORISED service station." To prevent direct exposure to the laser beam, do not try to open the enclosure.*

CAUTION: *USE OF CONTROLS OR ADJUSTMENTS OR PERFORMANCE OF PROCEDURES OTHER THAN THOSE SPECIFIED IN THE OWNER'S MANUAL MAY RESULT IN HAZARDOUS RADIATION EXPOSURE.*

TEAC CD-ROM drive CD-224E safety instruction

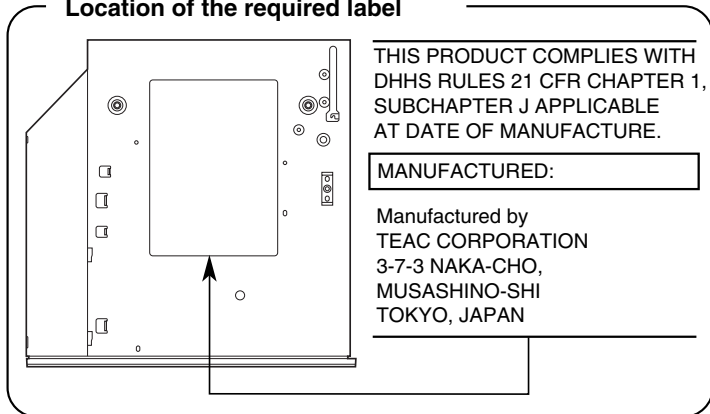** means any letters or numbers.

The CD-ROM drive employs a laser system. To ensure proper use of this product, please read this instruction manual carefully and retain for future reference. Should the unit ever require maintenance, contact an authorised service location.

Use of controls, adjustments or the performance of procedures other than those specified may result in hazardous radiation exposure.

To prevent direct exposure to the laser beam, do not try to open the enclosure.

This product has been designed and manufactured according to FDA regulations "title 21. CFR. chapter 1, subchapter J. based on the radiation Control for Health and Safety Act of 1968," and is classified as a class 1 laser product. There is no hazardous invisible laser radiation confined in the protective housings.

The label required in this regulation is shown below.

Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

Optical pickup	
Type:	PU-2200
Manufacturer:	TEAC CORPORATION
Laser output:	Less than 0.25m W on the objective lens
Wavelength:	795nm.

Location of the required label

THIS PRODUCT COMPLIES WITH DHHS RULES 21 CFR CHAPTER 1, SUBCHAPTER J APPLICABLE AT DATE OF MANUFACTURE.

MANUFACTURED:

Manufactured by
TEAC CORPORATION
3-7-3 NAKA-CHO,
MUSASHINO-SHI
TOKYO, JAPAN

CLASS 1 LASER PRODUCT
LASERSCHUTZKLASSE 1
PRODUKT
TO EN60825

CAUTION: *This appliance contains a laser system and is classified as a "CLASS 1 LASER PRODUCT." To use this model properly, read the instruction manual carefully and keep this manual for your future reference. In case of any trouble with this model, please contact your nearest "AUTHORISED service station." To prevent direct exposure to the laser beam, do not try to open the enclosure.*

CAUTION: *USE OF CONTROLS OR ADJUSTMENTS OR PERFORMANCE OF PROCEDURES OTHER THAN THOSE SPECIFIED IN THE OWNER'S MANUAL MAY RESULT IN HAZARDOUS RADIATION EXPOSURE.*

TEAC CD-W28E** CD-R/RW drive safety instruction

** means any letters or numbers.

This product has been designed and manufactured according to FDA regulations "title 21. CFR. chapter 1, subchapter J. based on the radiation Control for Health and Safety Act of 1968," and is classified as a class 1 laser product. There is no hazardous invisible laser radiation confined in the protective housings.

The label required in this regulation is shown below.

Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

	Optical pickup
Type:	PU-2200
Manufacturer:	TEAC CORPORATION
Laser output:	Less than 0.25m W on the objective lens
Wavelength:	795nm.

⚠ *The CD-ROM drive employs a laser system. To ensure proper use of this product, please read this instruction manual carefully and retain for future reference. Should the unit ever require maintenance, contact an authorised service location.*

Use of controls, adjustments or the performance of procedures other than those specified may result in hazardous radiation exposure.

To prevent direct exposure to the laser beam, do not try to open the enclosure.

Location of the required label

THIS PRODUCT COMPLIES WITH DHHS RULES 21 CFR CHAPTER 1, SUBCHAPTER J APPLICABLE AT DATE OF MANUFACTURE.

MANUFACTURED:

Manufactured by
TEAC CORPORATION
3-7-3 NAKA-CHO,
MUSASHINO-SHI
TOKYO, JAPAN

CLASS 1 LASER PRODUCT
LASERSCHUTZKLASSE 1
PRODUKT
TO EN60825

CAUTION: *This appliance contains a laser system and is classified as a "CLASS 1 LASER PRODUCT." To use this model properly, read the instruction manual carefully and keep this manual for your future reference. In case of any trouble with this model, please contact your nearest "AUTHORISED service station." To prevent direct exposure to the laser beam, do not try to open the enclosure.*

CAUTION: *USE OF CONTROLS OR ADJUSTMENTS OR PERFORMANCE OF PROCEDURES OTHER THAN THOSE SPECIFIED IN THE OWNER'S MANUAL MAY RESULT IN HAZARDOUS RADIATION EXPOSURE.*

General Precautions

Toshiba computers are designed to optimise safety, minimise strain and withstand the rigors of portability. However, certain precautions should be observed to further reduce the risk of personal injury or damage to the computer.

Be certain to read the general precautions below and to note the cautions included in the text of the manual.

Stress injury

Carefully read the *Safety Instruction Manual*. It contains information on prevention of stress injuries to your hands and wrists than can be caused by extensive keyboard use. Chapter 3, *Getting Started*, includes information on work space design, posture and lighting that can help reduce physical stress.

Heat Warning

The base of the PC can become very warm; while the temperature will not be too hot to the touch, prolonged physical contact may result in a temporary heat imprint on the skin. It is recommended that prolonged physical contact is avoided.

Also, if the computer has been used for a long time, avoid direct contact with the metal plate supporting the I/O ports. It can become hot.

Mobile phones

Use of mobile phones can interfere with the PC sound system. The PC operation is not impaired but it is recommended that a distance of 30cm is maintained between the PC & the mobile phone.

Pressure or impact damage

Do not apply heavy pressure to the computer or subject it to strong impact. Excessive pressure or impact can cause damage to computer components or otherwise cause malfunctions.

PC card overheating

Some PC cards can become hot with prolonged use. If two cards are installed, both can become hot even if only one is used extensively. Overheating of a PC card can result in errors or instability in the PC card operation. Also, be careful when you remove a PC card that has been used for a long time.

CE compliance

This product and the original options are designed to observe the related EMC (Electromagnetic compatibility) and safety standards. However, Toshiba should not guarantee that this product still observes these EMC standards if options or cables not produced by Toshiba are connected or implemented. In this case the persons who have connected / implemented those options / cables have to assure that the system (PC plus options / cables) still fulfils the required standards. To avoid in general EMC problems following advice should be observed:

■ Only CE marked options should be connected / implemented

■ Only best shielded cables should be connected

Working environment

This product was designed to fulfil the EMC (electromagnetic compatibility) requirements to be observed for so-called "Residential, commercial and light industry environments".

Toshiba do not approve the use of this product in working environments other than the above mentioned "Residential, commercial and light industry environments".

For example, the following environments are not approved:

■ Industrial Environments (environments with a mains voltage >230V~)

■ Medical Environments

■ Automotive Environments

■ Aircraft Environments

If this product is supplied with a network port, please refer to the paragraph "Network connection".

Any consequences resulting from the use of this product in working environments that are not approved are not the responsibility of Toshiba Europe GmbH.

The consequences of the use of this product in non-approved working environments may be:

■ Interference with other devices or machines in the near surrounding area

■ Malfunction of, or data loss from, this product caused by disturbances generated by other devices or machines in the near surrounding area

Therefore Toshiba strongly recommend that the electromagnetic compatibility of this product should be suitably tested in all non-approved working environments before use. In the case of automobiles or aircraft, the manufacturer or airline respectively should be asked for permission before use of this product.

Furthermore, for general safety reasons, the use of this product in environments with explosive atmospheres is not permitted.

Network connection (class A warning)

If this product has networking capabilities and will be connected to a network, Class A radiation limits will be observed (in accordance with technical conventions). This means that if the product will be used in a domestic environment, other devices in the near surrounding may suffer interference. Consequently, please do not use this product in such environments (for example a living room), otherwise you could be held responsible for any ensuing interference.

Modem warning notice

Conformity Statement

The equipment has been approved to [Commission Decision "CTR21"] for pan-European single terminal connection to the Public Switched Telephone Network (PSTN).

However, due to differences between the individual PSTNs provided in different countries/regions the approval does not, of itself, give an unconditional assurance of successful operation on every PSTN network termination point.

In the event of problems, you should contact your equipment supplier in the first instance.

Network Compatibility Statement

This product is designed to work with, and is compatible with the following networks. It has been tested to and found to conform with the additional requirements contained in EG 201 121.

Germany	- ATAAB AN005, AN006, AN007, AN009, AN010, and DE03, 04, 05, 08, 09, 12, 14, 17
Greece	- ATAAB AN005, AN006 and GR01, 02, 03, 04
Portugal	- ATAAB AN001, 005, 006, 007, 011 and P03, 04, 08, 10
Spain	- ATAAB AN005, 007, 012, and ES01
Switzerland	- ATAAB AN002
All other countries/regions	- ATAAB AN003, 004

Specific switch settings or software setup are required for each network.

The hookflash (timed break register recall) function is subject to separate national type approval. It has not been tested for conformity to national type regulations, and no guarantee of successful operation of that specific function on specific national networks can be given.

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Preface

Congratulations on your purchase of the Tecra 9000 Series Portable Personal Computer. This powerful notebook computer provides excellent expansion capability, including multimedia devices, and it is designed to provide years of reliable, high-performance computing.

This manual tells how to set up and begin using your computer. It also provides detailed information on configuring your computer, basic operations and care, using optional devices and troubleshooting.

If you are a new user of computers or if you're new to portable computing, first read over the *Introduction* and *The Grand Tour* chapters to familiarise yourself with the computer's features, components and accessory devices. Then read *Getting Started* for step-by-step instructions on setting up your computer.

If you are an experienced computer user, please continue reading the preface to learn how this manual is organised, then become acquainted with this manual by browsing through its pages. Be sure to look over the *Special features* section of the *Introduction*, to learn about features that are uncommon or unique to the computer and carefully read Setup *and Passwords*. Also read *Getting Started* for procedures on restoring your preinstalled software.

Manual contents

This manual is composed of nine chapters, eleven appendices, a glossary, and an index.

Chapter 1, *Introduction*, is an overview of the computer's features, capabilities, utilities and options.

Chapter 2, *The Grand Tour*, identifies the components of the computer and briefly explains how they function.

Chapter 3, *Getting Started*, provides a quick overview of how to begin operating your computer and gives tips on safety and designing your work area. Be sure to read the sections on setting up the operating system and on restoring the preinstalled software.

Chapter 4, *Operating Basics*, includes tips on care of the computer and on using the AccuPoint II, Slim Select Bay modules, diskette drive, LAN, microphone and internal modem.

Chapter 5, *The Keyboard*, describes special keyboard functions including the keypad overlay and hotkeys.

Chapter 6, *Power and Power-Up Modes,* gives details on the computer's power resources and battery save modes.

Chapter 7, *HW Setup and Passwords,* explains how to configure the computer using the *HW Setup* program. It also tells how to set passwords.

Chapter 8, *Optional Devices*, describes the optional hardware available.

Chapter 9, *Troubleshooting*, provides information on how to perform some diagnostic tests, and suggests courses of action if the computer doesn't seem to be working properly.

The Appendices provide technical information about your computer.

The Glossary defines general computer terminology and includes a list of acronyms used in the text.

The Index quickly directs you to the information contained in this manual.

Conventions

This manual uses the following formats to describe, identify, and highlight terms and operating procedures.

Abbreviations

On first appearance, and whenever necessary for clarity, abbreviations are enclosed in parentheses following their definition. For example: Read Only Memory (ROM). Acronyms are also defined in the Glossary.

Icons

Icons identify ports, dials, and other parts of your computer. The indicator panel also uses icons to identify the components it is providing information on.

Keys

The keyboard keys are used in the text to describe many computer operations. A distinctive typeface identifies the key top symbols as they appear on the keyboard. For example, **Enter** identifies the Enter key.

Key operation

Some operations require you to simultaneously use two or more keys. We identify such operations by the key top symbols separated by a plus sign (**+**). For example, **Ctrl + C** means you must hold down **Ctrl** and at the same time press **C**. If three keys are used, hold down the first two and at the same time press the third.

Display

ABC

Names of windows or icons or text generated by the computer that appears on its display screen is presented in the type face you see to the left.

Text generated by the computer is usually preceded by the screen icon.

Messages

Messages are used in this manual to bring important information to your attention. Each type of message is identified as shown below.

Pay attention! *A **caution** informs you that improper use of equipment or failure to follow instructions may cause data loss or damage your equipment.*

Please read. *A **note** is a hint or advice that helps you make best use of your equipment.*

Chapter 1

Introduction

This chapter provides an equipment checklist and it identifies the computer's features, utilities and options.

⚠️ *Some of the features described in this manual may not function properly if you use an operating system that was not preinstalled by Toshiba.*

Equipment checklist

Carefully unpack your computer. Save the box and packing materials for future use. Make sure you have the following items:

■ Tecra 9000 Portable Personal Computer

■ Universal AC adaptor and power cable

■ Modular cable (Provided only with models with the Toshiba internal modem preinstalled.)

■ A spare AccuPoint II (pointing device) cap

■ Slim SelectBay weight saver module

The computer is configured with one of two sets of preinstalled software, manual packages and auxiliary media depending on your choice of operating system.

"Windows 98" is the Microsoft® Windows® 98 SECOND EDITION operating system.

"Windows 2000" is the Microsoft® Windows® 2000 Professional operating system.

"Windows XP Professional" will be introduced when available from Microsoft. Please contact your Toshiba dealer for information.

Windows 98 install

- ■ The following software is preinstalled:
    - ■ Microsoft® Windows 98 Second Edition
    - ■ Microsoft Internet Explorer
    - ■ Modem driver
    - ■ Display Driver
    - ■ Intervideo WINDVD with DVD or DVD/CD/RW models
    - ■ Easy CD Creator, Direct CD with CD-RW or DVD/CD/RW models
    - ■ Toshiba Utilities
    - ■ Toshiba Power Saver
    - ■ Logitec MouseWare®
    - ■ Sound Driver
    - ■ LAN Driver
    - ■ Bluetooth Driver (Installed only in Bluetooth models.)
    - ■ Bluetooth Service Center (Installed only in Bluetooth models.)
    - ■ SPANworks 2000
    - ■ Supervisor Password Utility
    - ■ Infrared Device Driver
    - ■ Online help
- ■ Documentation:
    - ■ *Toshiba 9000 Portable Personal Computer User's Manual*
    - ■ *Microsoft Windows 98 manual package*
    - ■ *Safety Instruction Manual*
    - ■ *Warranty information*
- ■ Product Recovery CD-ROM
- ■ Tools & Utilities CD-ROM

Windows 2000 install

■ The following software is preinstalled:

  ■ Microsoft Windows® 2000 Professional

  ■ Microsoft Internet Explorer

  ■ Display driver

  ■ Intervideo WINDVD with DVD or DVD/CD/RW models

  ■ Easy CD Creator, Direct CD with CD-RW or DVD/CD/RW models

  ■ Sound driver

  ■ LAN driver

  ■ Modem driver

  ■ Logitec MouseWare®

  ■ Infrared device driver

  ■ Toshiba Utilities

  ■ Bluetooth Drivers (Installed only in Bluetooth models.)

  ■ Bluetooth Service Center (Installed only in Bluetooth models.)

  ■ SPANworks 2000

  ■ Toshiba Power Saver

  ■ Supervisor Password Utility

  ■ Online help

■ Your computer's documentation:

  ■ *Microsoft Windows 2000 manual package*

  ■ *The same documentation that is supplied with Windows 98.*

■ Product Recovery CD-ROM

■ Tools & Utilities CD-ROM

If any of the items are missing or damaged, contact your dealer immediately.

Features

The computer uses Complementary Metal-Oxide Semiconductor (CMOS) technology extensively to provide compact size, minimum weight, low power usage, and high reliability. This computer incorporates the following features and benefits:

Processor

Processor	The computer is equipped with an Intel® processor, which incorporates a math co-processor and a 32 KB cache memory.
	933 MHz Mobile Intel® Pentium® III Processor-M 933 MHz
	1.06 GHz Mobile Intel® Pentium® III Processor-M 1.06 GHz
	1.13 GHz Mobile Intel® Pentium® III Processor-M 1.13 GHz
	Other processors may be offered in the future.

Memory

Slots	128, 256 or 512 MB memory modules can be installed in the two memory slots for a maximum of 1,024 GB system memory.
Level 2 cache	A 512 KB level 2 cache maximises performance.
Video RAM	16 MB of RAM is provided for video display.

Power

Battery pack	The computer is powered by a rechargeable lithium-ion battery pack(s). A main battery is installed from factory side, and an optional Secondary battery can be installed in the Slim SelectBay.
RTC battery	The internal RTC battery backs up the Real Time Clock (RTC) and calendar.
AC adaptor	The universal AC adaptor provides power to the system and recharges the batteries when they are low. It comes with a detachable power cord. Because it is universal, it can receive a range of AC voltage between 100 and 240 volts.

Disk

Built-in	Hard disk drive is available in four sizes:
	■ 10 billion bytes (9.35 GB)
	■ 20 billion bytes (18.62 GB)
	■ 30 billion bytes (27.94 GB)
	Other hard disk drives may be offered in the future.
CD-ROM drive	A maximum 24-speed 650MB CD-ROM drive supports the following formats:
	■ Video CD ■ CD-EXTRA
	■ Photo CD ■ CD-R (read only)
	■ CD-ROM ■ CD-Rewritable (read only)
	■ CD-ROM x A ■ CD-DA
	■ CD-I ■ CD-Text
DVD-ROM drive	A full-size, DVD-ROM drive module lets you run either digital versatile or compact disks without using an adaptor. It runs DVD-ROMs at maximum 8 speed and CD-ROMs at maximum 24 speed. This drive supports the same formats as the CD-ROM drive plus the following:
	■ DVD-ROM ■ DVD-Video
CD-R/RW drive	Some models are equipped with a full-size, CD-R/RW drive module that lets you record CDs as well as run either digital versatile or compact disks without using an adaptor. It runs CDs and CD-Rs at maximum 24 speed and CD-RWs at maximum 14 speed. It writes CD-Rs and CD-RWs at maximum 8 speed. This drive supports the following formats:
	■ Video CD ■ CD-EXTRA
	■ Photo CD ■ CD-R
	■ CD-ROM ■ CD-Rewritable
	■ CD-ROM x A ■ CD-DA
	■ CD-Text

CD-RW/ DVD-ROM drive	Some models are equipped with a full-size, CD-RW/DVD-ROM drive module that lets you run CD/DVDs without using an adaptor. It reads DVD-ROMs at maximum 8 speed and CD-ROMs at maximum 24 speed. It writes CD-Rs at a maximum 8 speed and or CD-RWs at a maximum 4 speed. See Chapter 4, *Operating Basics*, for details. For reading, this drive supports the same formats as the DVD-ROM drive.

Display

The computer's LCD panel supports high-resolution video graphics. The screen can be set at a wide range of viewing angles for maximum comfort and readability.

Built-in	Thin-film transistor colour LCD is available in two sizes:
	■ 14.1" XGA-TFT, 1024 horizontal x 768 vertical pixels
	■ 14.1" SXGA+-TFT, 1400 horizontal x 1050 vertical pixels
Graphics controller	A 64-bit graphics controller maximises display performance. Refer to Appendix E for more information.

Keyboard

Built-in	85 keys or 86 keys, compatible with IBM 101- or 102-key enhanced keyboard, embedded numeric overlay, dedicated cursor control, and keys. See Chapter 5, *The Keyboard,* for details.

AccuPoint II

Built-in	A pointing device, the AccuPoint II, in the centre of the keyboard and control buttons at the base of the keyboard enable control of the on-screen pointer, scrolling of windows.

Ports

Parallel	Parallel printer or other parallel device (ECP compatible).
Serial	RS-232C compatible port (16550 UART compatible)
External monitor	A 15-pin, analogue VGA port supports VESA DDC2B compatible functions.
PS/2 Mouse/ Keyboard	Connects an external PS/2 mouse or PS/2 keyboard.
Universal Serial Bus	Two Universal Serial Bus (USB) ports enable chain connection of a number of USB-equipped devices to one port on your computer.
Infrared	The serial infrared port is compatible with Infrared Data Association (IrDA 1.1) standards. It enables cableless 4 Mbps, 1.152 Mbps, 115.2 kbps, 57.6 kbps, 38.4 kbps, 19.2 kbps or 9.6 kbps data transfer with IrDA 1.1 compatible external devices.
Docking interface port	This port enables connection of an optional Advanced Port Replicator described in the *Options* section.
i.LINK™ (IEEE1394)	This port enables high-speed data transfer directly from external devices such as digital video cameras or external hard disks

Slots

PC Card	A PC Card slot accommodates: ■ Two 5 mm Type II ■ One 10.5 mm Type III Refer to Chapter 8, *Optional Devices*, for details.
SD Card	The SD Card slot accommodates: ■ SD Cards Refer to Chapter 8, *Optional Devices*, for details.

Communications

Modem	An internal modem provides capability for data and fax communication. It supports V.90. The speed of data transfer and fax depends on analogue telephone line conditions. It has a modem jack for connecting to a telephone line.
LAN	The computer is equipped with LAN circuits that support Ethernet LAN (10 megabits per second, 10BASE-T) and Fast Ethernet LAN (100 megabits per second, 100BASE-Tx).
Wireless LAN	In some markets, the computer is equipped with a wireless LAN mini-PCI card that is compatible with other LAN systems based on Direct Sequence Spread Spectrum radio technology that complies with the IEEE 802.11 Standard (Revision B). It supports data transfer up to 11 Mbit/s. It has Frequency Channel Selection (2.4 GHz) and allows roaming over multiple channels.
Bluetooth	In some markets, the computer is equipped with circuits supporting Bluetooth communications standards enable wireless connection to compatible devices.
Toshiba Console button	Press this button to launch an application automatically. In Windows 2000 the default is Toshiba Console. In Windows 98, there is no default. Use the Toshiba Controls utility from the Windows Control Panel to associate an application to this button.

Multimedia

Sound system	It incorporates a 32-channel Wave Table Synthesiser and hardware acceleration for advanced sound applications including 3D games, DVD movie playback and Internet communications. The sound system is equipped with stereo speakers, a built-in microphone, a volume control knob and jacks for microphone and headphone.
Video-out jack	This RCA video jack lets you transfer NTSC or PAL data to external devices.

Slim SelectBay

Modules	Slim Select Bay is a single-drive bay that accommodates a CD-ROM drive, DVD-ROM drive, CD-R/RW drive, CD-RW/DVD-ROM drive, secondary hard disk drive or secondary battery. The Slim Select Bay utility enables hot docking of modules when you are using a plug and play operating system.
Weight saver	To reduce weight, the Slim Select Bay module can be removed and a weight saver installed.

Security

Security lock slot	Connects an optional security lock to anchor the computer to a desk or other large object
PC card lock	A PC card can be secured by an optional security lock to prevent access to the PC card slot.

Software

Operating System	One of the following operating systems are available Windows 98/2000. Refer to the preinstalled software section at the front of this chapter.
Toshiba Utilities	A number of utilities and drivers are preinstalled to make your computer more convenient to use. Refer to the *Utilities* section in this chapter.
Plug and Play	When you connect an external device to the computer or an optional Advanced Port Replicator , Plug and Play capability enables the system to recognise the connection and make the necessary configurations automatically.

Special features

The following features are either unique to Toshiba computers or are advanced features, that make the computer more convenient to use. Availability or use of specific features may vary according to the operating system.

Hotkeys	Key combinations let you quickly modify the system configuration directly from the keyboard. Refer to Chapter 5, *Keyboard*.
Display automatic power off	This feature automatically cuts off power to the internal display when there is no keyboard input for a time specified. Power is restored when any key is pressed. You can specify the time in the Turn off monitor item in Toshiba Power Saver.
HDD automatic power off	This feature automatically cuts off power to the hard disk drive when it is not accessed for a time specified. Power is restored when the hard disk is accessed. You can specify the time in the Turn off hard disks item in Toshiba Power Saver.
System automatic power off	This feature automatically turns off power to the system when a period of time specified. You can specify the time in the System standby item in Power Saver. In Windows 98, this feature works only in Standby mode.
Keypad overlay	Dark grey keys with white and light grey lettering make up the keypad overlay, which lets you use the keyboard for ten-key operations or cursor control.
Intelligent power supply	A microprocessor in the computer's intelligent power supply detects the battery's charge and calculates the remaining battery capacity. It also protects electronic components from abnormal conditions, such as voltage overload from an AC adaptor.
Power on password	Two levels of password security are available: supervisor and user. This feature prevents unauthorised access to your computer.
Instant security	A hotkey function blanks the screen and disables the keyboard providing quick and easy data security. Refer to Chapter 5, *Keyboard*.
Battery save mode	This feature lets you save battery power. You can specify the Power Save Mode in the Running on batteries item in Power Saver.

Panel power on/off	This feature turns power to the computer off when the display panel is closed and turns it back on when the panel is opened. You can specify the setting in the When I close the lid item in Power Saver.
Standby	If you have to interrupt your work, you can turn off the power without exiting from your software. Data is maintained in the computer's main memory. When you turn on the power again, you can continue working right where you left off.
Hibernation	This feature lets you turn off the power without exiting from your software. The contents of main memory is saved to the hard disk. When you turn on the power again, you can continue working right where you left off.
Low battery automatic Hibernation	When battery power is exhausted to the point that computer operation cannot be continued, the system automatically enters Hibernation mode and shuts down.

Utilities

This section describes preinstalled utilities and tells how to start them. For details on operations, refer to each utility's online help or readme files.

Power Saver Utility	To access this power savings management program, open the Control Panel and double-click the Toshiba Power Saver icon.
HW Setup	This program lets you customise your hardware settings according to the way you work with your computer and the peripherals you use. Refer to Chapter 7, *HW Setup and Passwords*.
Supervisor Password	This utility lets you register a Supervisor Password, which restricts access to set-up programs. You can also use it to modify the user password in Windows.
DVD Player	The DVD Video Player is used to play DVD-Video. It has an on-screen interface and functions. Click Start, point to Programs, point to InterVideo WinDVD, then click InterVideo WinDVD.

Display Driver for Windows	The display driver enables simultaneous display on the internal LCD, and on an external computer monitor or television set. To enable this function, use the Display Properties dialog box.
Sound driver	A broad range of audio controls are possible through the AC-XG sound driver, including: Software Synthesise, Mic volume and 3D enhancement, and Power management. Click Start, point to Settings, click Control Panel and double click the AC-XG Audio Config icon. For other sound settings, use the Windows Device Manager, Multimedia panel or volume control dial.
LAN driver	This preinstalled driver makes the computer LAN-ready for a computer running Windows 98/2000. To make LAN settings, click Start, point to Settings, click Control Panel and double-click the Network icon.
Slim Select Bay utility	This utility enables hot docking of Slim Select Bay modules, that is, you can remove/install Slim Select Bay modules while the computer is on. There are two ways to activate this utility: Click the Tray icon on the task bar or double-click the Toshiba Slim Select Bay icon in the Control Panel.
MouseWare	The Mouse Control utility lets you set the properties and functions for the AccuPoint II or PS/2 mouse. To start the utility, click the Windows Start button, point to Settings and click Control Panel. In the Control Panel, double-click the Mouse icon.
Toshiba Accessibility	This utility lets you make the **Fn** key sticky, that is, you can press it once, release it, and they press an "**F number**" key. The **Fn** key remains active until another key is pressed.
Hotkey utility	This utility lets you display or hide a confirmation message when you press **Fn + F3** or **Fn + F4**.
Toshiba Controls	Use this utility to customise Toshiba Console button settings.

Toshiba Console	Toshiba Console is a graphical user interface that provides easy access to help and services. It is the default function launched by the Toshiba Console button and is available only with Windows 2000.
Bluetooth Toshiba Stack	This software enables communication between remote Bluetooth devices.

Bluetooth cannot be used in models that do not have a Bluetooth module installed.

Options

You can add a number of options to make your computer even more powerful and convenient to use. The following options are available:

Memory expansion	Two memory expansion slots are available for installing 128, 256 or 512 MB memory modules. The modules are SD Random Access Memory (SD-RAM), 144-pin, SO Dual In-line (SO-DIMM).

Windows 98 does not support more than 512 MB of memory and will not operate if more than 512 MB is installed.

Main battery pack	An additional main battery pack can be purchased from your Toshiba dealer.
AC adaptor	If you use your computer at more than one site frequently, it may be convenient to purchase an additional AC adaptor for each site so you will not have to carry the adaptor with you.
Advanced Port Replicator	The Advanced Port Replicator provides the ports available on the computer in addition to separate PS/2 mouse and PS/2 keyboard ports, a digital visual interface (DVI) port, line-in jack and line-out jack.
Battery charger	The battery charger lets you charge main batteries or secondary batteries outside the computer.
3 ½" USB diskette drive	A 3 ½" diskette drive accommodates 1.44-megabyte or 720-kilobyte diskettes. It connects to a USB port.

Hard disk drive	You can increase your computer's data storage capacity with additional hard disk drives. They are available in the following sizes:
	■ 10 billion bytes (9.35 GB)
	■ 20 billion bytes (18.62 GB)
	■ 30 billion bytes (27.94 GB)
	Other hard disk drives may be offered in the future.
Security lock	A slot is available to attach a security cable to the computer to deter theft.
Security plate	This device covers the bottom of the computer when it is connected to a Advanced Port Replicator to prevent removal of components.
Wireless LAN Kit	This option enables wireless LAN functions in computers that do not have wireless preinstalled. It is installed by dealers only.
Bluetooth Kit	This option enables Bluetooth wireless communications in computers that do not have Bluetooth preinstalled. It is installed by dealers only.

Slim SelectBay options

The following modules can be installed in the Slim Select Bay. You can select either a CD-ROM drive, a DVD-ROM drive, a CD-R/CD-RW drive, a CD-RW/DVD-ROM drive , a secondary hard disk drive or a secondary battery to be preinstalled as a standard device. All other modules are options.

CD-ROM	Refer to the Features section for details.
DVD-ROM	Refer to the Features section for details.
CD-R/RW	Refer to the Features section for details.
CD-RW/ DVD-ROM	Refer to the Features section for details.
Secondary HDD adaptor	An adaptor lets you install an optional HDD described in Chapter 8, *Options*.
Secondary battery pack	The secondary battery increases your computer's battery power and operating time when a main battery is also installed.

Chapter 2

The Grand Tour

This chapter identifies the various components of your computer. Become familiar with each component before you operate the computer.

Front with the display closed

The figure below shows the computer's front with its display panel in the closed position.

SD CARD LED   WIRELESS COMMUNICATION SWITCH   VOLUME CONTROL   DISPLAY LATCH

INFRARED PORT   MICROPHONE JACK   HEADPHONE JACK   SYSTEM INDICATOR PANEL
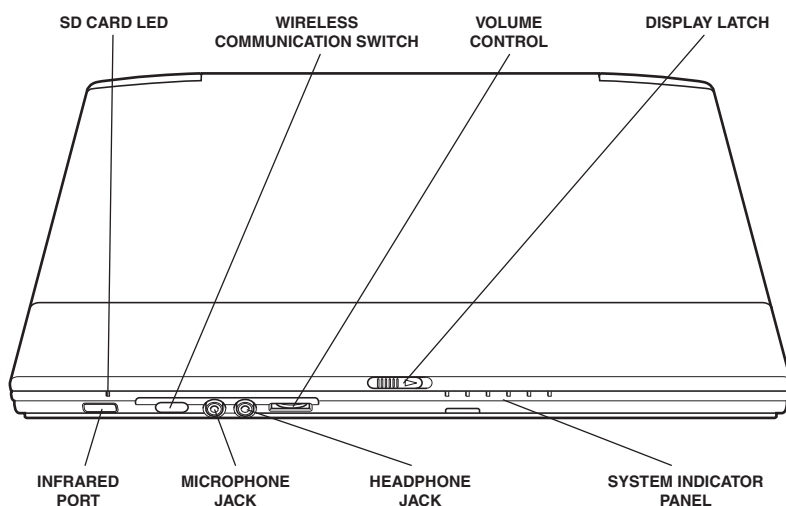
Front of the computer with display closed

SD card LED   This indicator glows when the SD card is being accessed.

	Infrared port	This infrared port is compatible with Infrared Data Association (IrDA 1.1) standards. It enables cableless 4 Mbps, 1.15 Mbps, 115.2 kbps, 57.6 kbps, 38.4 kbps, 19.2 kbps or 9.6 kbps data transfer with IrDA 1.1 compatible external devices.
Off On	**Wireless communication switch**	Slide this switch to the right to turn on Bluetooth and wireless LAN. Slide it to the left to turn off the functions.

⚠️ *Set the switch to off in aeroplanes and hospitals. Check the wireless communication LED. It will stop glowing when the wireless communication function is off.*

|		
	Microphone jack	A standard 3.5 mm mini microphone jack enables connection of a monaural microphone or other device for audio input. When you connect an external microphone, the internal microphone is automatically disabled.
	Headphone jack	A standard 3.5 mm mini headphone jack enables connection of a stereo headphone (16 ohm minimum) or other device for audio output. When you connect headphones, the internal speaker is automatically disabled.
	Volume control	Use this dial to adjust the volume of the stereo speakers.
	Display latch	This latch secures the LCD panel in its closed position.
	System indicator panel	LEDs indicate the status of various system resources. See the *System Indicators* section in this chapter for details.

Left side

The figure below shows the computer's left side.

VIDEO-OUT JACK   **HDD SLOT COVER**

SLIM SELECT BAY   **SD CARD SLOT**
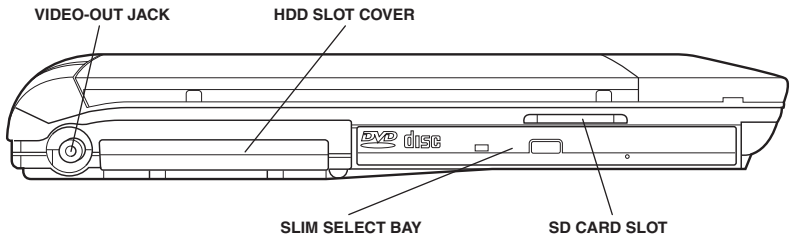
The left side of the computer

|		
Video out	**Video-out jack**	Plug an RCA video connector into this jack. Refer to Chapter 7, *HW Setup and Passwords*.
	HDD slot cover	This cover allows easy access to the hard disk drive slot for removal of an HDD and installation of an optional HDD. An icon marks a latch. Refer to the *Hard disk drive pack* section in Chapter 8, *Optional Devices.*
	Slim SelectBay	A CD-ROM drive, CD-R/RW drive, DVD-ROM drive, CD-RW/DVD-ROM drive, secondary battery, Slim Select Bay HDD Adaptor II can be installed in the Slim Select Bay. A weight saver can be installed when there is no module.
SD	**SD card**	This slot lets you easily transfer data from devices, such as digital cameras and Personal Digital Assistants, that use SD cards. The cards have a high level of security and copy protection features. This slot does not support Multi Media or Smart Media cards. Refer to Chapter 8, *Optional Devices*.

Keep foreign objects out of the SD card slot. A pin or similar object can damage the computer's circuitry.

Right side

The figure below shows the computer's right side.

SECURITY LOCK SLOT

PC CARD SLOT   AIRVENT
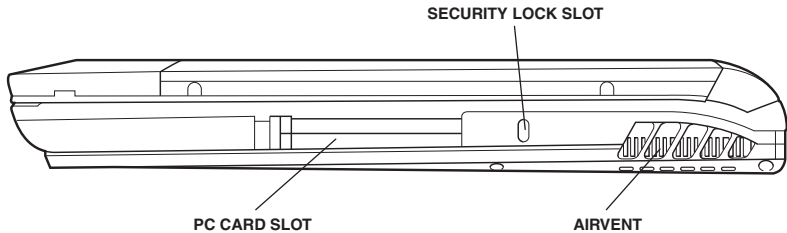
The right side of the computer

|		
CB 1 0	**PC card slot**	A PC card slot can accommodate two 5 mm PC cards (Type II) or one 10.5 mm PC card (Type III). The slot supports 16-bit PC cards and CardBus PC cards.
	Security lock slot	A security cable attaches to this slot. The optional security cable anchors your computer to a desk or other large object to deter theft.
	Air vent	An air vent helps keeps the CPU from overheating.

Be careful not to block the air vent. Also be careful to keep foreign objects out of it. A pin or similar object can damage the computer's circuitry.

Back side

The figure below shows the computer's back panel.
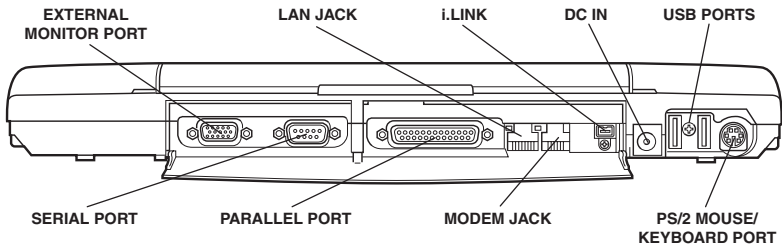
The back side of the computer

	External monitor port	This 15-pin port, protected by a plastic cover, lets you connect an external video display.
	Serial port	Use this 9-pin port to connect external serial devices such as an external modem, a serial mouse or printer.
	Parallel port	This Centronics-compatible, 25-pin parallel port is used to connect a parallel printer or other parallel device. This port supports Extended Capabilities Port (ECP) standard.
Ether	**LAN jack**	This jack lets you connect to a LAN. The adaptor has built-in support for Ethernet LAN (10 megabits per second, 10BASE-T) and Fast Ethernet LAN (100 megabits per second, 100BASE-Tx).
	Modem jack	If you have an internal modem installed as standard equipment, there is a modem jack that lets you use a modular cable to connect the modem directly to a telephone line.

In case of a lightning storm, unplug the modem cable from the telephone jack.

Do not connect the modem to a digital telephone line (ISDN). A digital line will damage the modem.

S400	**i.LINK (IEEE1394) port**	Connect an external device, such as a digital video camera to this port for high-speed data transfer. You must connect the AC adaptor when you use i.LINK.
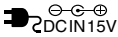
▶ ⊖⊖⊕ $\overline{DC\,IN15V}$	**DC IN**	Attach the AC adaptor to the **DC IN** socket and plug the adaptor's power cord into any wall outlet.
⚡ (USB icon)	**Universal Serial Bus ports**	Two Universal Serial Bus (USB) ports enable chain connection of a number of USB-equipped devices to one port on your computer. For example, you might connect a USB-HUB to the computer, then connect a keyboard to the USB-HUB and a mouse to the keyboard.
⌨/🖱	**PS/2 mouse/ keyboard port**	Use this port to connect an external PS/2 compatible mouse or keyboard. The computer automatically recognises which device you have connected when you turn on the power.

Underside

The figure below shows the underside of the computer. Make sure the display is closed before turning over your computer.
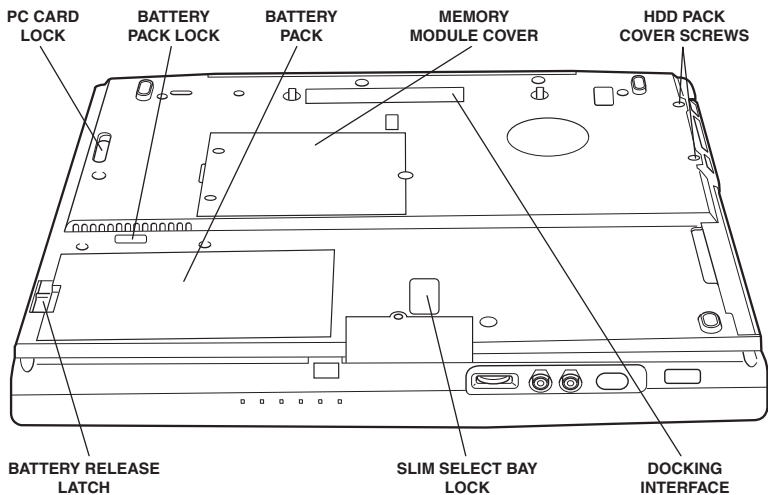
The underside of the computer
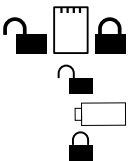
🔓▭🔒	**PC card lock**	Slide this lock to release or secure PC cards.
🔓▭🔒	**Battery pack lock**	Slide this lock to release or secure the battery pack.

	Battery pack	The battery powers the computer when the AC adaptor is not connected. An indicator on the battery pack shows the lock and unlock position. For detailed information on the battery pack, refer to Chapter 6, *Power and Power-Up Modes*.
	Memory module cover	This cover protects two memory module sockets. One or two modules are preinstalled.
	Notches	Notches on the computer engage hooks on the Advanced Port Replicator to hold the connection securely.
	HDD bump	The HDD bump absorbs shocks and protects the HDD from damages.
	HDD pack cover screws	Two screws secure the HDD cover.
	Battery release latch	Slide this latch to release the battery pack.
	Slim SelectBay lock	Slide the lock to release the Slim Select Bay.
	Slim SelectBay	See the Left side section in this chapter for details.
	Docking interface	This port enables connection of an optional Advanced Port Replicator described in Chapter 8, *Optional Devices*.

Keep foreign objects out of the docking interface port. A pin or similar object can damage the computer's circuitry. A plastic shutter protects the connector.

Front with the display open

The figure below shows the front of the computer with the display open. To open the display, slide the latch on the front of the display and lift up. Position the display at a comfortable viewing angle.
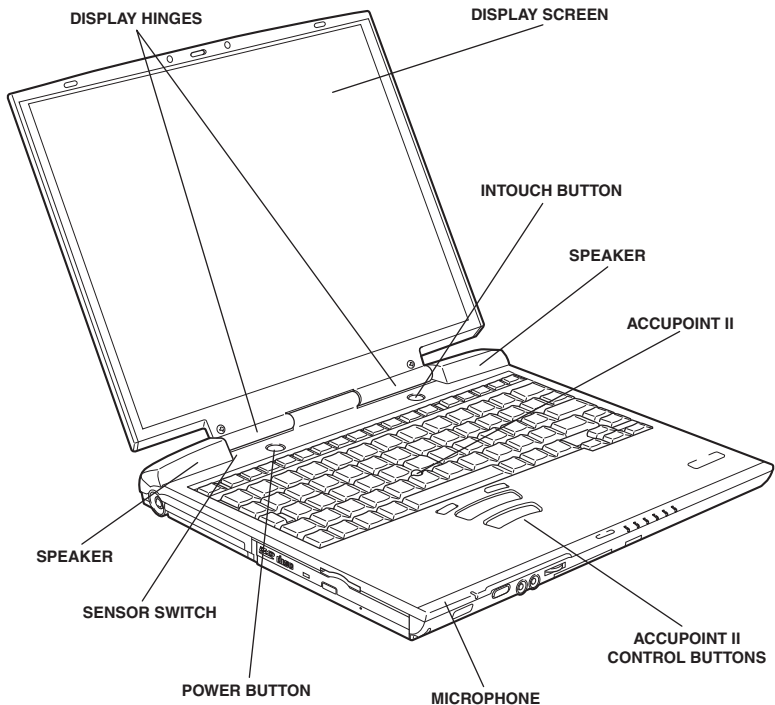
The front with the display open

Display hinges	The display hinges hold the display screen at easy-to-view angles.
Display screen	The LCD displays high-contrast text and graphics. Refer to *Appendix E*.
	When the computer operates on power through the AC adaptor, the display screen's image will be somewhat brighter than when it operates on battery power. The lower brightness level is intended to save battery power.

i	**Toshiba Console Button**	You can associate an application to this button for automatic launch. If the computer is off, pressing this button starts the computer and launches the associated program automatically. The default in Windows 2000 is Toshiba Console. There is no default in Windows 98.
	Stereo speakers	The speakers emit sound generated by your software as well as audio alarms, such as low battery condition, generated by the system.
	AccuPoint II	A pointer control device located in the centre of the keyboard is used to control the on-screen pointer. Refer to the *Using AccuPoint II* section in Chapter 4, *Operating Basics*.
	AccuPoint II control buttons	Control buttons below the keyboard let you select menu items or manipulate text and graphics designated by the on-screen pointer.
	Microphone	A built-in microphone lets you record sounds into your applications. See *Using the microphone* in Chapter 4, *Operating Basics.*
(¹)	**Power button**	Press the button to turn the computer's power on or off.
	Sensor switch	This switch shuts down the computer when you close the cover and the panel power on/off feature is enabled.

Indicators

The figures below show the indicator lights, which light when various computer operations are in progress.

Keyboard indicators
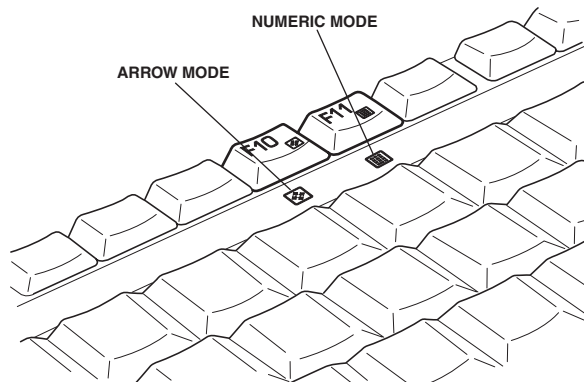
Keypad overlay indicators
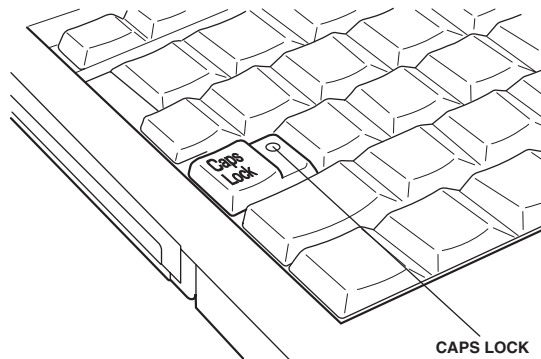
CapsLock indicator

	Caps Lock	This indicator glows green when the alphabet keys are locked in uppercase.
	Arrow mode	When the **Arrow mode** indicator lights green, you can use the keypad overlay (white labelled keys) as cursor keys. Refer to the *Keypad overlay* section in Chapter 5, *The Keyboard*.
	Numeric mode	You can use the keypad overlay (white labelled keys) for numeric input when the **Numeric mode** indicator lights green. Refer to the *Keypad overlay* section in Chapter 5, *The Keyboard*.

System indicators
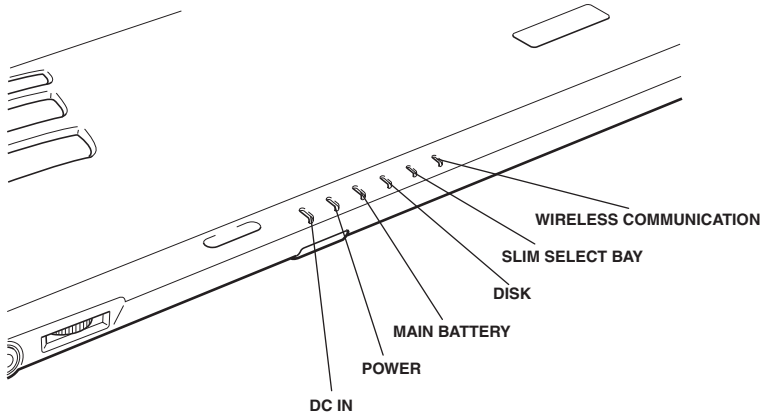
The system indicator panel

	DC IN	The **DC IN** indicator glows green when DC power is supplied from the AC adaptor. If the adaptor's output voltage is abnormal or if the power supply malfunctions, this indicator flashes orange.
	Power	The **Power** indicator glows green when the computer is on. If you turn off the computer in Standby mode, this indicator flashes orange (one second on, two seconds off) .
	Main Battery	The **Main Battery** indicator shows the condition of the battery's charge: Green indicates full charge, orange indicates battery charging and flashing orange indicates a low battery charge. Refer to Chapter 6, *Power and Power-Up Modes*.
	Disk	This indicator glows green when the computer is accessing the internal hard disk.
	Slim SelectBay	This indicator glows green when the computer is accessing a DVD-ROM drive, CD-R/RW drive, CD-ROM drive, secondary HDD or secondary battery in the Slim Select Bay. It also indicates the status of a secondary battery: Green indicates full charge, orange indicates battery charging and flashing orange indicates a low battery charge. Refer to Chapter 6, *Power and Power Up Modes*, for details on indications for a secondary battery.

| ((•)) | **Wireless communication** | This LED glows orange when the Bluetooth and wireless LAN functions are on. |

AC adaptor

The AC adaptor converts AC power to DC power and reduces the voltage supplied to the computer. It can automatically adjust to any voltage from 100 to 240 volts and to any frequency from 50 to 60 hertz, enabling you to use the computer in almost any country.

To recharge the battery, simply connect the AC adaptor to a power source and the computer. See Chapter 6 *Power and Power-Up Modes* for details.
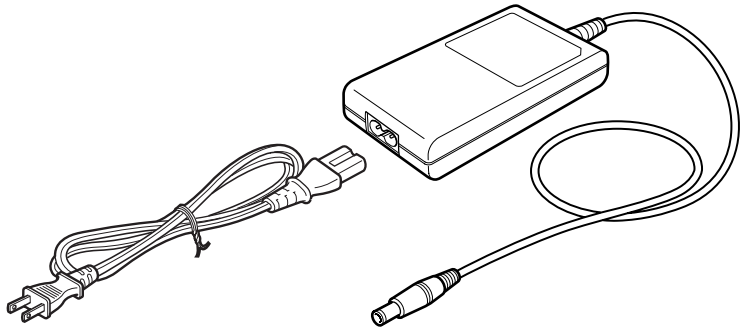
The AC adaptor

> ⚠️ *Use of the wrong adaptor could damage the computer. Toshiba assumes no liability for any damage in such case. The current rating for the computer is 5.0 amperes.*

Slim SelectBay modules

The Slim Select Bay can accommodate the following modules: CD-ROM drive, DVD-ROM drive, CD-R/RW drive, CD-RW/DVD-ROM drive, optional secondary battery pack and optional Slim Select Bay HDD adaptor.

DVD-ROM drive

An optional full-size DVD-ROM drive module lets you run either 12 cm (4.72") or 8 cm (3.15") digital video disk/compact disk without using an adaptor. It may be selected as a standard component or as an option.

The read speed is slower at the centre of a disk and faster at the outer edge. The minimum (centre) and maximum (outer edge) for DVDs and CDs are:

DVD   *8-speed (maximum)*

CD   *24-speed (maximum)*

This drive supports the following formats:

- DVD ROM
- Video CD
- Photo CD
- CD-ROM
- CD-ROM x A
- CD-I

- DVD Video
- CD-EXTRA
- CD-R (read only)
- CD-Rewritable (read only)
- CD-DA
- CD-Text

EJECT HOLE

EJECT BUTTON

DISK-IN-USE INDICATOR

The DVD-ROM drive

Eject button	Press the eject button to open the drawer partially.
Eject hole	Insert a slender object to open the drawer when the power to the computer is off.

Disk-In-Use Indicator This indicator lights when the diskette is being accessed.

Check the **Slim Select Bay** *indicator when you use the DVD-ROM drive. Do not press the eject button, disconnect a drive or turn off the computer while the light is glowing. Doing so could damage the DVD/CD or the drive.*

Region codes

DVD drives and media are manufactured according to the specifications of six marketing regions. When you purchase DVD media, make sure it matches your drive, otherwise it will not play properly.

Code	Region
1	Canada, United States
2	Japan, Europe, South Africa, Middle East
3	Southeast Asia, East Asia
4	Australia, New Zealand, Pacific Islands, Central America, South America, Caribbean
5	Russia, Indian Subcontinent, Africa, North Korea, Mongolia
6	China

CD-ROM drive

An optional full-size, maximum 24-speed CD-ROM drive module lets you run either 12 cm (4.72") or 8 cm (3.15") compact disks without using an adaptor. It may be selected as a standard component or as an option.

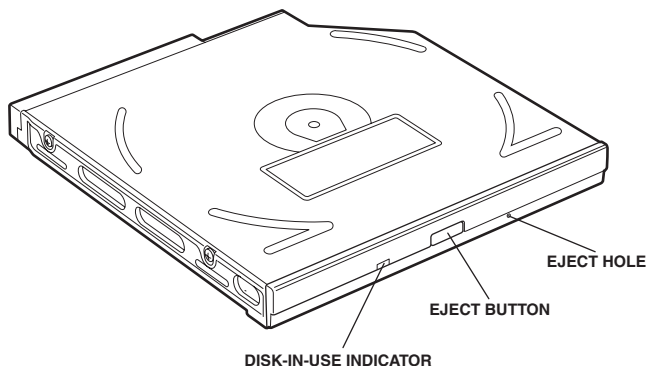This drive supports the following formats:

■ Video CD
■ CD-EXTRA
■ Photo CD
■ CD-R (read only)
■ CD-ROM
■ CD-Rewritable (read only)
■ CD-ROM x A
■ CD-DA
■ CD-I
■ CD-Text

CD read	24-speed (maximum)
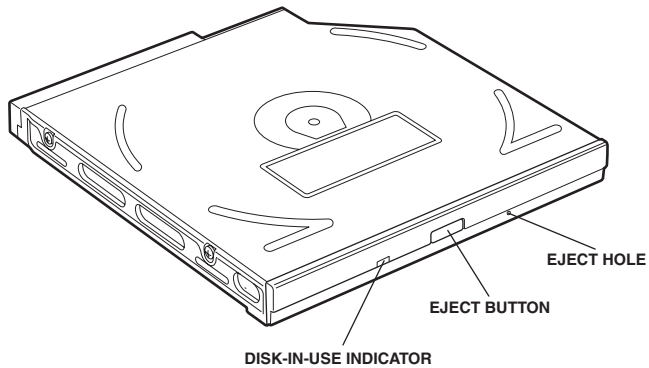
The CD-ROM drive

Eject button	Press the eject button to open the drawer partially.
Eject hole	Insert a slender object to open the drawer when the power to the computer is off.
Disk-In-Use Indicator	This indicator lights when the diskette is being accessed.

Check the **Slim Select Bay** *indicator when you use the CD-ROM drive. Do not press the eject button, disconnect a drive or turn off the computer while the light is glowing. Doing so could damage the CD or the drive.*

CD-R/RW drive

The full-size CD-R/RW drive module lets you record data to rewritable CDs as well as run either 12 cm (4.72") or 8 cm (3.15") CDs without using an adaptor. It may be selected as a standard componant or as an option

This drive supports the following formats:

- Video CD
- Photo CD
- CD-ROM
- CD-ROM x A
- CD-Text

- CD-EXTRA
- CD-R
- CD-Rewritable
- CD-DA

CD/CD-R read	24 speed (maximum)
CD-RW read	14-speed
CD-R/RW write	8 speed (maximum)
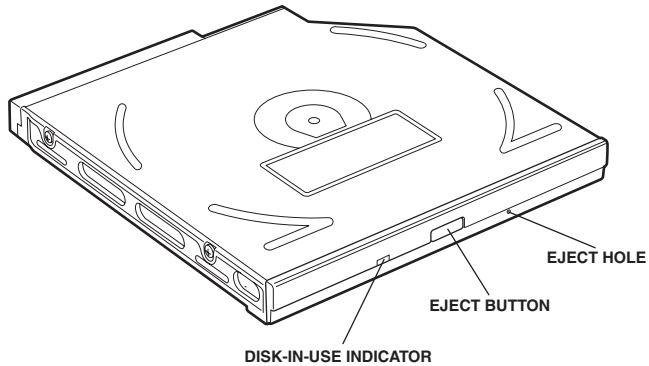
The CD-R/RW drive

CD-R/RW-In-Use Indicator	This indicator lights when a CD is being accessed.
Eject button	Press the eject button to open the drawer partially.
Eject hole	Insert a slender object to open the drawer when the power to the CD-R/RW drive is off.

Check the **Slim SelectBay** *indicator when you use the CD-R/RW drive. Do not press the eject button, disconnect a drive or turn off the computer while the light is glowing. Doing so could damage the CD or the drive.*

CD-RW/DVD-ROM drive

The full-size CD-RW/DVD-ROM drive module lets you record data to rewritable CDs as well as run either 12 cm (4.72") or 8 cm (3.15") CD/DVDs without using an adaptor. It may be selected as a standard componant or as an option.

DVD read	8 speed (maximum)
CD read	24 speed (maximum)
CD-R write	8 speed (maximum)
CD-RW write	4 speed (maximum)
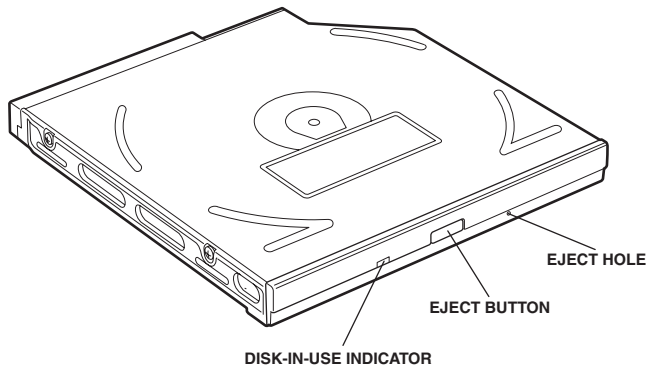
The CD-RW/DVD-ROM drive

This drive supports the following formats:

☐ DVD-ROM	☐ DVD-Video
☐ CD-ROM	☐ CD-EXTRA
☐ Audio CD	☐ CD-R
☐ Photo CD	☐ CD-RW

Check the **Slim Select Bay** *indicator when you use the CD-RW/DVD-ROM drive. Do not press the eject button, disconnect a drive or turn off the computer while the light is glowing. Doing so could damage the CD/DVD or the drive.*

Region codes

DVD-ROM drives and media are manufactured according to the specifications of six marketing regions. When you purchase DVD media, make sure it matches your drive, otherwise it will not play properly.

Code	Region
1	Canada, United States
2	Japan, Europe, South Africa, Middle East
3	Southeast Asia, East Asia
4	Australia, New Zealand, Pacific Islands, Central America, South America, Caribbean
5	Russia, Indian Subcontinent, Africa, North Korea, Mongolia
6	China

Secondary battery pack

An optional battery pack can be installed in the Slim Select Bay to increase the computer's battery power and operating time. For details, refer to the documentation accompanying the secondary battery pack. Refer to Chapter 8, *Optional Devices*, for details on installing a secondary battery pack.
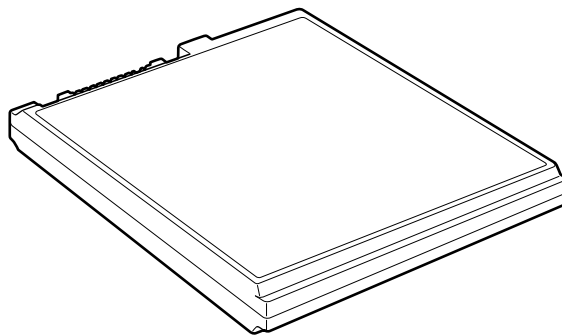
The secondary battery pack

Slim Select Bay HDD adaptor

You can increase your computer's data storage capacity by installing an optional integrated, 2 ½" HDD in the Slim Select Bay.

To install an HDD, follow the steps below.

1. Slide the cover lock to the unlock position and lift up the cover.
2. Lay the HDD into the Slim Select Bay HDD adaptor and push it forward to secure the connectors.
3. Close the cover.
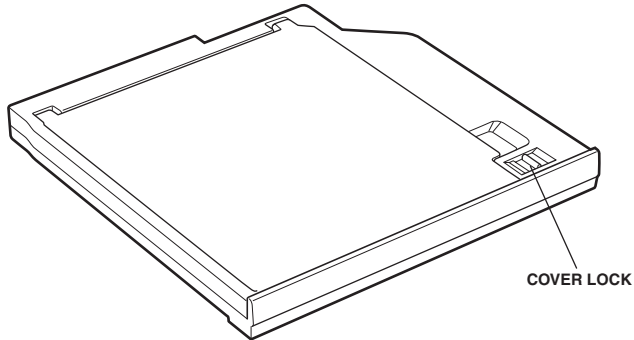
COVER LOCK

The Slim Select Bay HDD adaptor

4. Slide the cover lock to the lock position.

Weight saver

Installing a weight saver module in the Slim Select Bay lets you reduce the carrying weight of the computer.
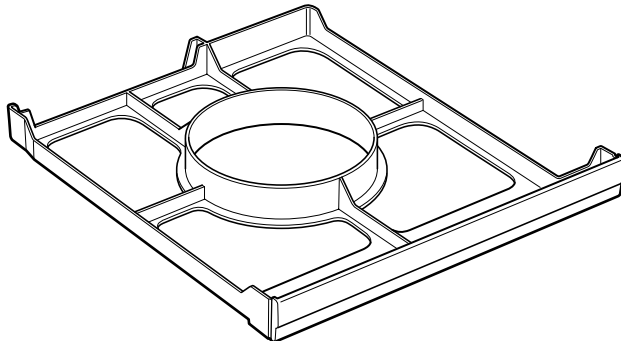
The weight saver

Chapter 3

Getting Started

This chapter provides basic information to get you started using your computer. It covers the following topics:

■ Setting up your work space — for your health and safety

■ Connecting the AC adaptor

■ Opening the display

■ Turning on the power

■ Turning off the power

■ Restarting the computer

■ Restoring your preinstalled software

If you are a new user, follow the steps in each section of this chapter as you prepare to operate your computer.

If you are an experienced user, glance over the chapter for any material that might be new to you. Be sure to read the appropriate section on setting up your operating system.

Also read the section, *Restoring the complete system*, which describes how to restore the preinstalled software from the Product Recovery CD-ROM.

Setting up your work space

Establishing a comfortable work site is important for you and your computer. A poor work environment or stressful work habits can result in discomfort or serious injury from repetitive strain to your hands, wrists or other joints. Proper ambient conditions should also be maintained for the computer's operation. This section discusses the following topics:

■ General conditions

■ Placement of the computer and peripheral devices

■ Seating and posture

■ Lighting

■ Work habits

General conditions

In general, if you are comfortable, so is your computer, but read the following to make sure your work site provides a proper environment.

■ Make sure there is adequate space around the computer for proper ventilation.

■ Make sure the AC adaptor's power cord connects to an outlet that is close to the computer and easily accessible.

■ The temperature should be 5 to 35 degrees Centigrade (41 to 95 degrees Fahrenheit) and the relative humidity should be 20 to 80 percent.

■ Avoid areas where rapid or extreme changes in temperature or humidity may occur.

■ Keep the computer free of dust, moisture, and exposure to direct sunlight.

■ Keep the computer away from heat sources, such as electric heaters.

■ Do not use the computer near liquids or corrosive chemicals.

■ Do not place the computer near objects that create strong magnetic fields (e.g., stereo speakers).

■ Do not operate the computer in close proximity to a mobile phone.

Placement of computer

Position the computer and peripheral devices to provide comfort and safety.

■ Set the computer on a flat surface at a comfortable height and distance. The display should be no higher than eye level to avoid eye strain.

■ Place the computer so that it is directly in front of you when you work and make sure you have adequate space to easily operate other devices.

■ Allow adequate space behind the computer to let you freely adjust the display. The display should be angled to reduce glare and maximise visibility.

■ If you use a paper holder, set it at about the same height and distance as the computer.

Seating and posture

The height of your chair in relation to the computer and keyboard as well as the support it gives your body are primary factors in reducing work strain. Refer to the following tips and illustration.
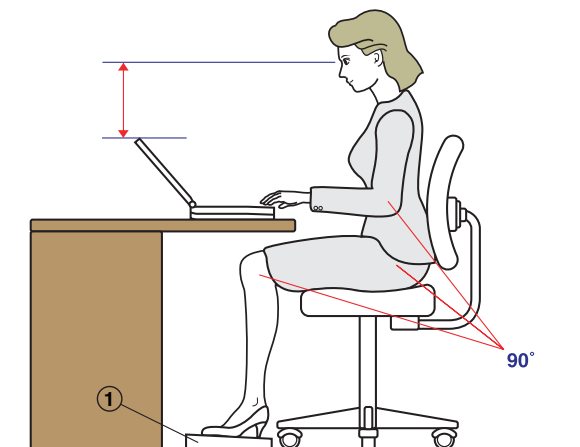
Posture and positioning of the computer

■ Place your chair so that the keyboard is at or slightly below the level of your elbow. You should be able to type comfortably with your shoulders relaxed.

■ Your knees should be slightly higher than your hips. If necessary, use a foot rest (see "1" in the above illustration) to raise the level of your knees to ease pressure on the back of your thighs.

■ Adjust the back of your chair so it supports the lower curve of your spine.

■ Sit straight so that your knees, hips and elbows form approximately 90 degree angles when you work. Do not slump forward or lean back too far.

Lighting

Proper lighting can improve legibility of the display and reduce eye strain.

■ Position the computer so that sunlight or bright indoor lighting does not reflect off the screen. Use tinted windows, shades or other screen to eliminate sun glare.

■ Avoid placing the computer in front of bright light that could shine directly in your eyes.

■ If possible, use soft, indirect lighting in your computer work area. Use a lamp to illuminate your documents or desk, but be sure to position the lamp so that it does not reflect off the display or shine in your eyes.

Work habits

A key to avoiding discomfort or injury from repetitive strain is to vary your activities. If possible, schedule a variety of tasks into your work day. If you must spend long periods at the computer, finding ways to break up the routine can reduce stress and improve your efficiency.

■ Sit in a relaxed posture. Good positioning of your chair and equipment as described earlier can reduce tension in your shoulders or neck and ease back strain.

■ Vary your posture frequently.

■ Occasionally stand up and stretch or exercise briefly.

■ Exercise and stretch your wrists and hands a number of times during the day.

■ Frequently, look away from the computer and focus your eyes on a distant object for several seconds, for example 30 seconds every 15 minutes.

■ Take frequent short breaks instead of one or two long breaks, for example, two or three minutes every half hour.

■ Have your eyes examined regularly and visit a doctor promptly, if you suspect you might be suffering from a repetitive strain injury.

A number of books are available on ergonomics and repetitive strain injury or repetitive stress syndrome. For more information on these topics or for pointers on exercises for such stress points as hands and wrists, please check with your library or book vendor. Also refer to the computer's *Safety Instruction Manual*.

Connecting the AC adaptor

Attach the AC adaptor when you need to charge the battery or you want to operate from AC power. It is also the fastest way to get started, because the battery pack will need to be charged before you can operate from battery power.

The AC adaptor can be connected to any power source supplying 100 to 240 volts and 50 to 60 hertz. For details on using the AC adaptor to charge the battery pack, refer to Chapter 6, *Power and Power-Up Modes*.

Use of the wrong adaptor could damage the computer. Toshiba assumes no liability for any damage in such case. The current rating for the computer is 5.0 amperes.

1. Connect the power cord to the AC adaptor.
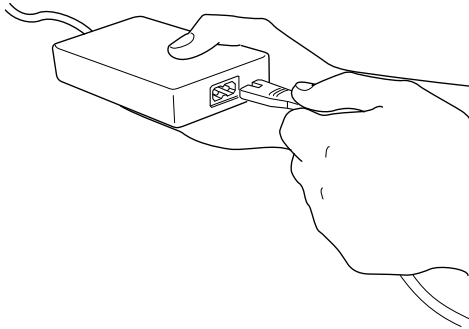
Connecting the power cord to the AC adaptor

2. Connect the AC adaptor's DC output plug to the **DC IN** input port on the back of the computer.
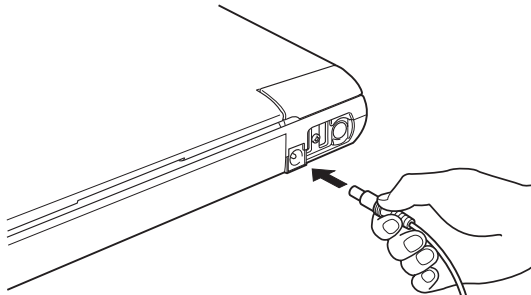
Connecting the adaptor to the computer

3. Plug the power cord into a live wall outlet. The **Main Battery** and **DC IN** indicators on the front of the computer should glow.

Opening the display

The display panel can be rotated in a wide range of angles for optimal viewing.

1. Face the front of the computer and slide the display latch.
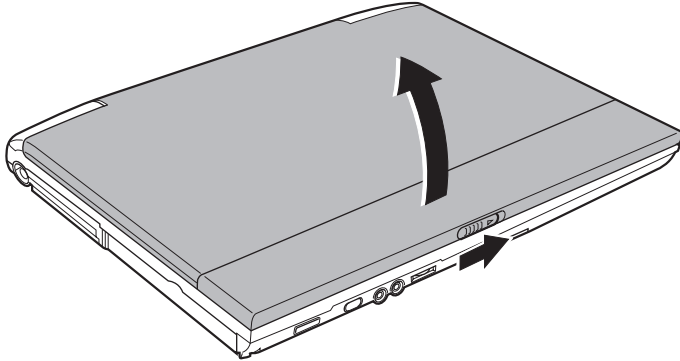
Opening the display

2. Lift the panel up and adjust it to the best viewing angle for you.

Use reasonable care when opening and closing the display panel.

Opening it vigorously or slamming it shut could damage the computer.

Hold the centre of the display when opening or closing it.

Do not allow excess pressure on the top of the computer. Be careful not to pack it too tightly. If the computer is compressed, the LCD might be damaged or stained by the keyboard or AccuPoint II. If you see markings on the LCD. Try wiping the LCD gently with a clean dry cloth. If markings remain, use LCD cleaner. Be sure to let the LCD dry before closing it.

Turning on the power

This section describes how to turn on the power.

After you turn on the power for the first time, do not turn it off until the operating system has loaded completely. . Turning off the computer during its initial start up, may cause an error the next time you start the computer.

1. Open the display panel.
2. Turn on the computer by momentarily pressing and then releasing the power button.
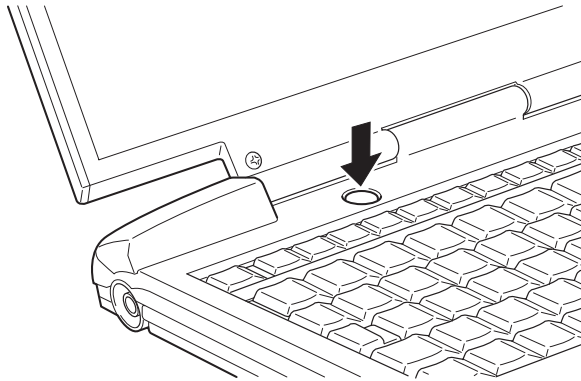
Turning on the power

Windows OS setup

When you first turn on the power, the computer's initial screen is the Microsoft Windows Startup Screen Logo. Follow the on-screen directions for each screen. During setup, you can click the **Back** button to return to the previous screen.

Be sure to read the **Windows End User License Agreement** display carefully.

Be sure to read the License Agreement carefully.

Turning off the power

The power can be turned off in one of the following modes: Shut down (Boot), Hibernation or Standby mode.

Shut Down mode (Boot mode)

When you turn off the power in Shut Down mode no data is saved and the computer will boot to the operating system's main screen.

1. If you have entered data, save it to the hard disk or to a diskette.

2. Make sure all disk activity has stopped, then remove any CDs or diskette.

Make sure the **Disk, Slim Select Bay** *and Slim Select Bay's module indicators are off. If you turn off the power while a disk is being accessed, you can lose data or damage the disk.*

3. Click **Start** and click **Shut Down**. From the `Shut Down` menu select **Shut Down** and click the **OK** button.

4. Turn off the power to any peripheral devices.

Do not turn the computer or devices back on immediately. Wait a moment to let all capacitors fully discharge.

Hibernation mode

The hibernation feature saves the contents of memory to the hard disk when the computer is turned off. The next time the computer is turned on, the previous state is restored. The hibernation feature does not save the status of peripheral devices.

While entering hibernation mode, the computer saves the contents of memory to the HDD. Data will be lost if you remove the battery or disconnect the AC adaptor before the save is completed. Wait for the **Built-in HDD** *indicator to go out.*

Do not install or remove a memory module while the computer is in hibernation mode. Data will be lost.

Benefits of hibernation

The hibernation feature provides the following benefits:

■ Saves data to the hard disk when the computer automatically shuts down because of a low battery.

For the computer to shut down in hibernation mode, the hibernation feature must be enabled in two places in Toshiba Power Saver: the Hibernate window and the Battery Alarm item of the Alarm window. Otherwise, the computer will shut down in Standby mode. If battery power becomes depleted, data saved in Standby will be lost.

■ You can return to your previous working environment immediately when you turn on the computer.
■ Saves power by shutting down the system when the computer receives no input or hardware access for the duration set by the System hibernate feature.
■ You can use the panel power off feature.

Starting Hibernation

To enter Hibernation mode, follow the steps below.

1. Click **Start** and click **Shut Down**.
2. In **Shut Down Windows** select **Hibernate** and click the **OK** button.

The computer will also enter Hibernate mode automatically when you:

■ Press the power button.
■ Close the lid.

First, however, make the appropriate settings according to the steps below.

1. Open the Windows **Control Panel** and double-click the **Toshiba Power Saver** icon.
2. Select the **Hibernate** window, select the **Enable Hibernate support** check box and click the **Apply** button.
3. Select the **Power Save Modes** window.
4. Double-click **Power Mode (Full Power, Long life, Normal or High Power)** and open the **System Power Mode** window.
5. Enable the desired Hibernation settings for **When I press the power button** and **When I close the lid**.
6. Click the **OK** button.

Data save in hibernation mode

When you turn off the power in hibernation mode, the computer takes a moment to save current memory data to the hard disk. During this time, the **Built-in HDD** indicator will light.

After you turn off the computer and memory is saved to the hard disk, turn off the power to any peripheral devices.

Do not turn the computer or devices back on immediately. Wait a moment to let all capacitors fully discharge.

Standby mode

In standby mode the power remains on, but the CPU and all other devices are in sleep mode.

Before entering Standby mode, be sure to save your data.

Do not install or remove a memory module while the computer is in standby mode. The computer or the module could be damaged.

Do not remove the battery pack while the computer is in standby mode (unless the computer is connected to an AC power source). Data in memory will be lost.

If you carry the computer on board an aircraft or into a hospital, be sure to shut down the computer in hibernation mode or in shutdown mode to avoid radio signal interference.

Benefits of standby

The standby feature provides the following benefits:

■ Restores the previous working environment more rapidly than does hibernation.

■ Saves power by shutting down the system when the computer receives no input or hardware access for the duration set by the System Standby feature.

■ You can use the panel power off feature.

Executing standby

You can enter standby mode in one of three ways:

1. Click **Start**, click **Shut Down**, select **Stand by** and click **OK**.

2. Close the display panel. This feature must be enabled. Refer to the *System Power Mode* item in *Power Saver Utility* described in the Control Panel and double-click the Toshiba Power Saver icon.

3. Press the power button. This feature must be enabled. Refer to the *System Power Mode* item in *Power Saver Utility* described in the Control Panel and double-click the Toshiba Power Saver icon.

When you turn the power back on, you can continue where you left when you shut down the computer.

When the computer is shut down in standby mode, the power indicator glows orange.

If you are operating the computer on battery power, you can lengthen the operating time by shutting down in hibernation mode. Standby mode consumes more power.

Standby limitations

Standby will not function under the following conditions:

■ Power is turned back on immediately after shutting down.

■ Memory circuits are exposed to static electricity or electrical noise.

Restarting the computer

Certain conditions require that you reset the system. For example, if:

■ You change certain computer settings.

■ An error occurs and the computer does not respond to your keyboard commands.

There are three ways to reset the computer system:

1. Select **Restart** from the **Windows Shut Down** menu in the **Start** box.

2. Press **Ctrl** + **Alt** + **Del**.

3. Press the power button and hold it down for five seconds. Wait 10 to 15 seconds, then turn the power on again by pressing the power button.

Restoring the preinstalled software

If preinstalled files are damaged, use the Product Recovery CD-ROM or the Toshiba Tools & Utilities CD-ROM to restore them.

Restoring the complete system

To restore the operating system and all preinstalled software, follow the steps below.

When you reinstall the Windows operating system, the hard disk will be reformatted and all data will be lost. Make sure you have a backup copy of your data, before you perform a complete system recovery.

1. Load the Product Recovery CD-ROM in the drive and turn off the computer's power.
2. Hold down the **C** key and turn on the power. When the **TOSHIBA** logo appears, release the **C** key.
3. Follow the on-screen instructions.
4. After recovery is complete, remove the Product Recovery CD.
5. Press **Ctrl + Alt + Del** to restart the system. Refer to your Microsoft user's manual for Windows' setup instructions.

Restoring Toshiba utilities and drivers

If Windows is working properly, individual drivers or applications can be separately restored. Use the Tools & Utilities CD-ROM according to instructions in the booklet contained in the CD box to reinstall Toshiba utilities and drivers.

Chapter 4

Operating Basics

This chapter gives information on basic operations including using AccuPoint II, changing Slim Select Bay modules, using optical media drives, Wireless Lan Communications, using the microphone, connecting the modem and tips on caring for your computer.

Using AccuPoint II

To use the AccuPoint II, simply push it with your finger tip in the direction you want to move the on-screen pointer.
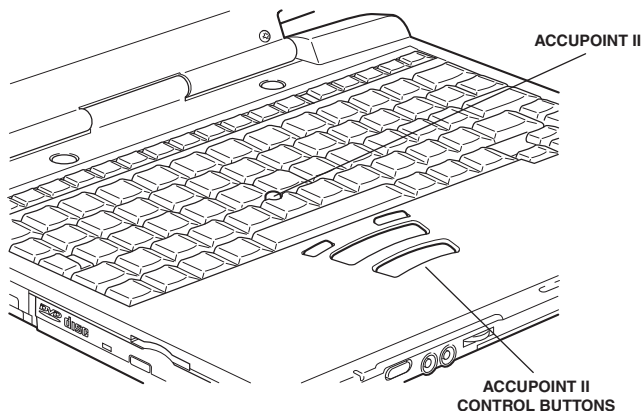
AccuPoint II and control buttons

Two large buttons below the keyboard are used like the buttons on a mouse pointer. Press a button to select a menu item or to manipulate text or graphics designated by the pointer. The left small button toggles Universal Scroll on and off. When Universal Scroll is on, use the AccuPoint II to scroll the screen. The right small button works as the **Back** button on your Internet browser. You can switch the functions of the large and small buttons in the **Mouse** utility in Windows Control Panel.

AccuPoint II precautions

Under certain conditions the on-screen pointer may travel contrary to AccuPoint II operation. For example, if

■ You touch the AccuPoint II during power-up.

■ You apply constant, soft pressure to the AccuPoint II.

■ There is a sudden temperature change.

■ Strong stress is applied to the AccuPoint II.

If such travelling occurs, it is not a malfunction. Wait a moment for the pointer to stop, then continue operation.

Replacing the cap

The AccuPoint II cap is an expendable item that should be replaced after prolonged use. There is a spare AccuPoint II cap supplied with the computer.

1. To remove the AccuPoint II cap, firmly grasp the cap and pull it straight up.

ACCUPOINT II CAP

PEG
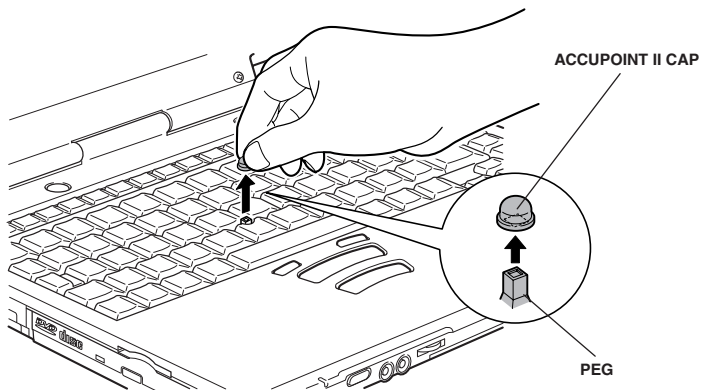
Removing the AccuPoint II cap

2. Position a new cap on the peg and press it into place.

The peg is square, so be careful to align the cap's square hole with the peg.

Changing Slim Select Bay modules

This section explains how to change modules in the Slim Select Bay. The illustrations show removal and installation of the DVD-ROM drive. Therefore, the text refers to this module. However, the procedures are the same for any of the modules: CD-ROM drive, DVD-ROM drive, CD-R/RW drive, CD-RW/DVD-ROM drive, optional Slim Select Bay HDD adaptor or optional secondary battery pack with separate tray.

To avoid injury, do not put your hand into the Slim Select Bay slot.

The Slim Select Bay Utility is preinstalled to support hot swapping under Windows. Refer to Chapter 1, *Introduction*, *and to the utility's online help files for information on using this utility to change modules while the computer's power is on.*

Removing a module

Remove the DVD-ROM drive as described below.

1. Check all disk indicators to make sure no disks are operating.
2. Turn the computer upside down.

Wait for all disk indicators to go out before you turn over the computer and be careful to lay the computer down gently. Shock can damage the HDD or other components.

3. Slide the Slim Select Bay lock to the unlock position.
4. Grasp the DVD-ROM drive and pull it out.

The DVD-ROM drive and other Slim Select Bay modules can become hot with use. Be careful when removing the module.
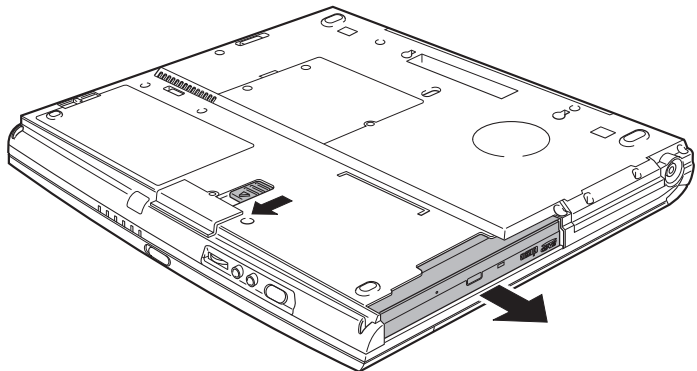
Removing the DVD-ROM drive

Installing a module

Install the DVD-ROM pack as described below.

1. Insert the DVD-ROM pack in the computer as shown below and press until the ejector clicks.

2. Pull the Slim Select Bay lock forward until the connection is secure.
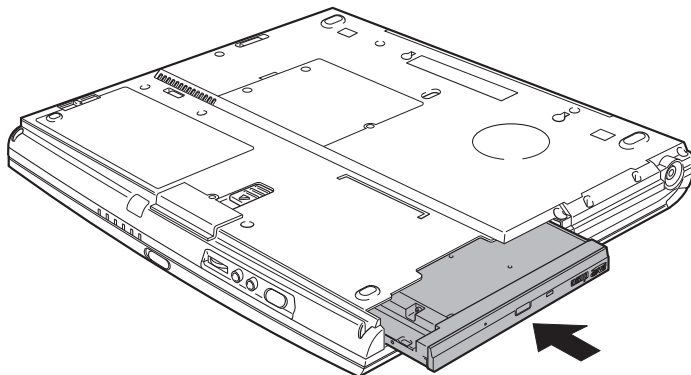
Installing the DVD-ROM pack

3. Set the Slim Select Bay lock to the lock position.

Using optical media drives

The text and illustrations in this section refer primarily to the CD-ROM drive. However, operation is the same for the DVD-ROM drive, CD-R/RW drive and CD-RW/DVD-ROM drives. The full-size drive provides high-performance execution of CD-ROM-based programs. You can run either 12 cm (4.72") or 8 cm (3.15") compact disks/digital versatile discs without an adaptor. An ATAPI interface controller is used for CD-ROM operation. When the computer is accessing a CD-ROM, an LED on the drive glows.

CD-ROM drive

CD	24-speed (maximum)

DVD-ROM drive

CD	24-speed (maximum)
DVD	8-speed (maximum)

CD-R/RW drive

Read	
CD, CD-R	24-speed (maximum)
CD-RW	14-speed (maximum)
Write	
CD-R	8 speed (maximum)
CD-RW	8 speed (maximum)

CD-RW/DVD-ROM drive

Read	
CD	24-speed (maximum)
DVD	8-speed (maximum)
Write	
CD-R	8-speed (maximum)
CD-RW	4-speed (maximum)

Loading optical media

To load DVDs, follow the steps below and refer to the following illustrations.

1. Turn on the power.

2. a. Press the DVD-ROM eject button to open the drawer slightly.
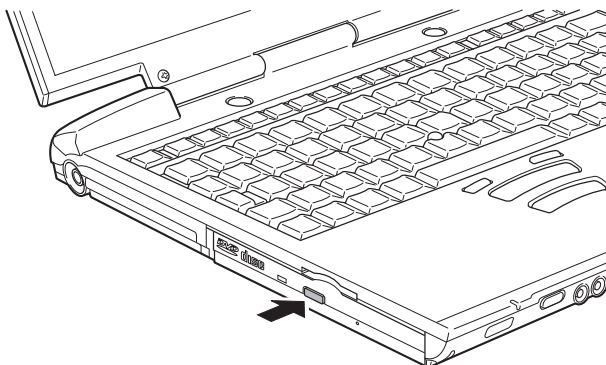
Pressing the DVD-ROM eject button

b. Pressing the eject button will not open the drawer when the computer's power is off. If the power is off, you can open the drawer by inserting a slender object (about 1.5 cm) such as a straightened paper clip into the eject hole just to the right of the eject button.

15mm

Ø 1.0mm
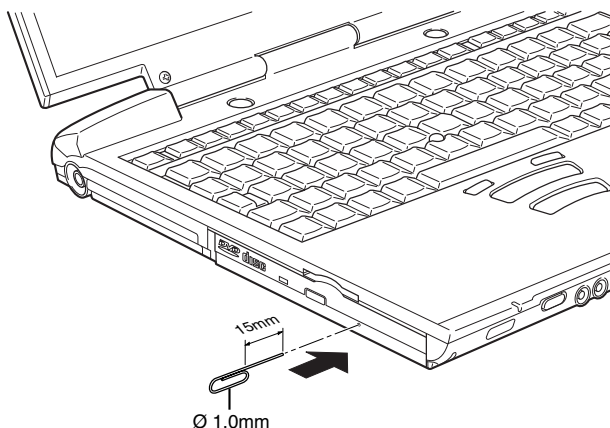
Manual release with the eject hole

3. Grasp the drawer gently and pull until it is fully opened.
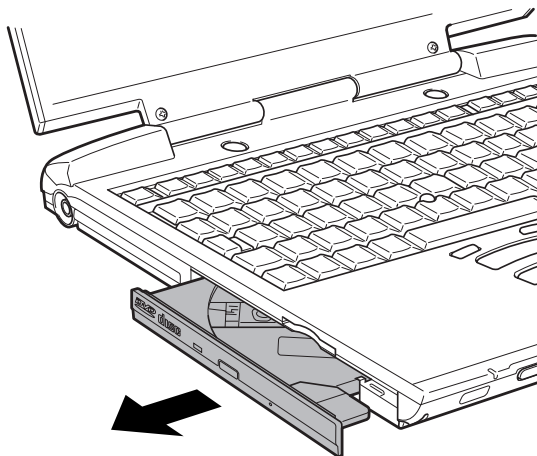
Pulling the drawer open

4. Lay the DVD, label side up, in the drawer.

When the drawer is fully opened, the edge of the computer will extend slightly over the DVD tray. Therefore, you will need to turn the DVD at an angle when you place it in the tray. After seating the DVD, however, make sure it lies flat, as shown in figure"Closing the DV- ROM drawer".

Do not touch the laser lens. Doing so could cause misalignment.

Be careful to keep foreign matter from entering the drive. Check the back edge of the tray to make sure it carries no debris before closing the drive.

5. Press gently at the centre of the DVD until you feel it click into place. The DVD should lie below the top of the spindle, flush with the spindle base.
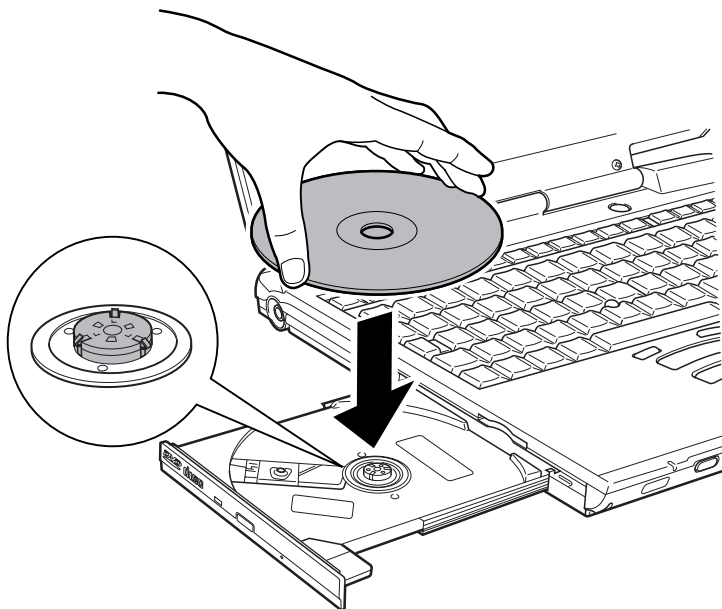
Inserting a DVD

6. Push the centre of the drawer to close it. Press gently until it locks into place.

If the DVD is not seated properly when the drawer is closed, the DVD might be damaged. Also, the drawer might not open fully when you press the eject button.
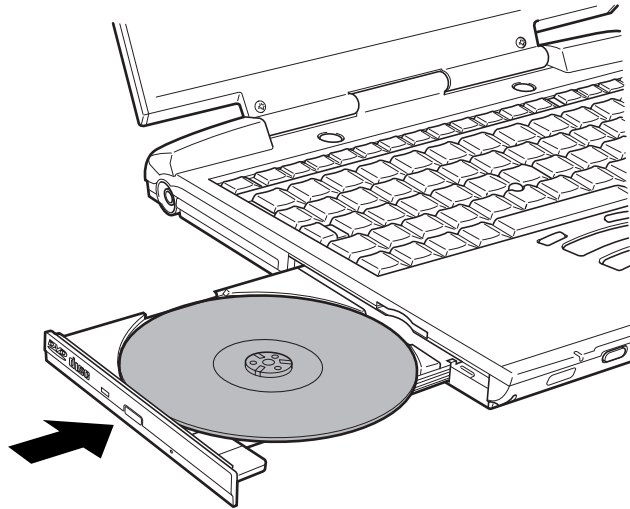
Closing the DVD-ROM drawer

Removing discs

To remove the disc, follow the steps below and refer to the following illustration.

Do not press the eject button while the computer is accessing the disc drive. Wait for the eject button LED to go out before you open the drawer. Also, if the disc is spinning when you open the drawer, wait for it to stop before you remove it.

1. To pop the drawer partially open:

■ Press the eject button when the computer's power is on.

■ Insert a slender object such as a straightened paper clip into the eject hole when the power is off.

Gently pull the drawer out until it is fully opened.

2. There are indentations on the sides of the drawer to let you grasp the disc. Hold it gently and lift it out.

When the drawer is fully opened, the edge of the computer will extend slightly over the DVD tray. Therefore, you will need to turn the DVD at an angle when you remove it.
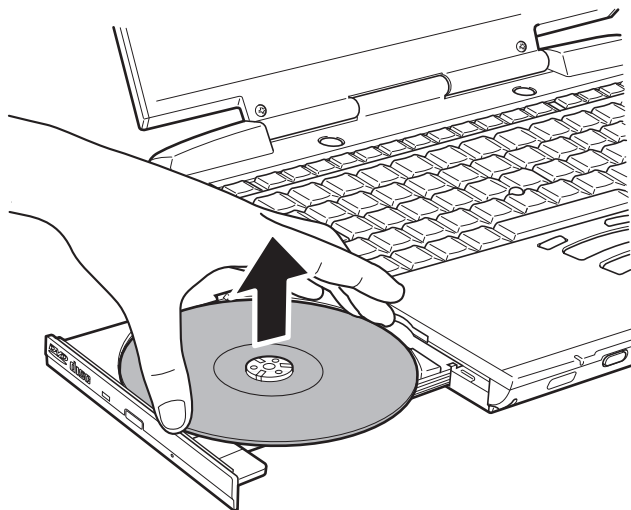
Removing a DVD

3. Push the centre of the drawer to close it. Press gently until it locks into place.

Media care

This section gives tips on protecting data stored on your CD/DVDs.

Handle your media with care. The following simple precautions will increase the lifetime of your media and protect the data stored on them:

CD/DVDs

1. Store your CD/DVDs in the container they came in to protect them and keep them clean.
2. Do not bend the CD/DVD.
3. Do not write on, apply a sticker to, or otherwise mar the surface of the CD/DVD that contains data.
4. Hold the CD/DVD by its outside edge or the edge on the centre hole. Fingerprints on the surface may prevent the drive from properly reading data.
5. Do not expose to direct sunlight, extreme heat or cold. Do not place heavy objects on your CD/DVDs.
6. If your CD/DVDs become dusty or dirty, wipe them with a clean dry cloth. Wipe from the centre out, do not wipe in a circular direction around the CD/DVD. If necessary, use a cloth dampened in water or a neutral cleaner. Do not use benzine, thinner or similar cleaner.

Wireless communication

The computer's wireless communication function supports both wireless LAN or Bluetooth devices.

Wireless LAN

The integrated wireless LAN is compatible with other LAN systems based on Direct Sequence Spread Spectrum radio technology that complies with IEEE 802.11 wireless LAN standard (Revision B). It supports the following features:

■ Automatic Transmit Rate Select mechanism in the transmit range of 11, 5.5, 2 and 1 Mbit/s.

■ Frequency Channel Selection (2.4 GHz)

■ Roaming over multiple channels

■ Card Power Management

■ Wired Equivalent Privacy (WEP) data encryption, based on the 128 bit RC4 encryption algorithm as defined in the IEEE 802.11 standard on wireless LANs.

Wake-up on LAN does not function on a wireless LAN.

Bluetooth wireless technology

Bluetooth™ wireless technology eliminates the need for cables between electronic devices such as desktop computers, printers and mobile phones.

You cannot use the built-in Bluetooth functions and an optional Bluetooth PC card simultaneously.

Bluetooth wireless technology is a new innovative technology, and Toshiba has not confirmed compatibility of its Bluetooth™ products with all PCs and/or equipment using Bluetooth wireless technology other than Toshiba portable computers.

Always use Bluetooth™ cards from Toshiba in order to enable wireless networks over two or more (up to a total of seven) Toshiba portable computers using these cards.

When you use Bluetooth™ cards from Toshiba close to 2.4 GHz Wireless LAN devices, Bluetooth transmissions might slow down or cause errors. If you detect certain interference while you use Bluetooth™ cards from Toshiba, change the frequency, move your PC to the area outside of the interference range of 2.4 GHz Wireless LAN devices (40 meters) or stop transmitting from your PC.

Please contact Toshiba PC product support on Web site http://www.toshiba-europe.com in Europe for more information.

Bluetooth wireless technology has the following features:

Worldwide operation

The Bluetooth radio transmitter and receiver operates in the 2.45 GHz band, which is license-free and compatible with radio systems in most countries in the world.

Radio links

You can easily establish links between two or more devices. The link is maintained even if the devices are not within line of sight.

Security

Two advanced security mechanisms ensure a high level of security:

■ Authentication prevents access to critical data and makes it impossible to falsify the origin of a message.

■ Encryption prevents eavesdropping and maintains link privacy.

Wireless communication switch

You can enable or disable wireless LAN and Bluetooth functions, with the Wireless Communication switch. No transmissions are sent or received when the switch is off. Slide the switch right to turn it on and left to turn it off.

Set the switch to off in aeroplanes and hospitals. Check the LED. It will stop glowing when the wireless communication function is off.

Wireless Communication LED

The LED indicates the status of the wireless communication functions.

LED status	Indication
LED off	Wireless communication switch is set to off.
	Automatic power down because of overheating.
	Power malfunction
LED glows	Wireless communication switch is on.
	Wireless **communication** is turned on by an application.

If you used the Task Tray icon to disable Wireless LAN, restart the computer or follow the procedures below to enable the system to recognise Wireless LAN. Open or click the following: **Start**, **Setup**, **Control Panel**, **System**, **Device Manager** and **Renew**.

LAN

LAN circuits support Ethernet LAN (10 megabits per second, 10BASE-T) and Fast Ethernet LAN (100 megabits per second, 100BASE-Tx). This section describes how to connect/disconnect to a LAN.

Do not install or remove an optional memory module while Wake-up on LAN is enabled.

Wake-up on LAN does not work without the AC adaptor. Leave it connected, if you are using this feature.

LAN cable types

The computer must be configured properly before connecting to a LAN. Logging onto a LAN using the computer's default settings could cause a malfunction in LAN operation. Check with your LAN administrator regarding set-up procedures.

If you are using Fast Ethernet LAN (100 megabits per second, 100BASE-TX), be sure to connect with a CAT5 cable. You cannot use a CAT3 cable.

If you are using Ethernet LAN (10 megabits per second, 10BASE-T), you can connect with either a CAT5 or a CAT3.

Connecting cable

To connect the LAN cable, follow the steps below.

Connect the AC adaptor before connecting the LAN cable. The AC adaptor must remain connected during LAN use. If you disconnect the AC Adaptor while the computer is accessing a LAN, the system may hang up.

1. Turn off the power to the computer and to all external devices connected to the computer.
2. Plug one end of the cable into the LAN's jack. Press gently until you hear the latch click into place.
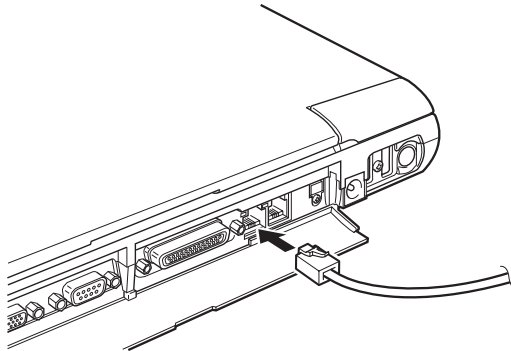
Connecting the LAN cable

3. Plug the other end of the cable into a LAN hub connector. Check with your LAN administrator before connecting to a hub.

Disconnecting cable

To disconnect the LAN cable, follow the steps below.

1. Pinch the lever on the connector in the computer and pull out the connector.
2. Disconnect the cable from the LAN hub in the same manner. Check with your LAN administrator before disconnecting from the hub.

Using the microphone

Your computer has a built-in microphone that can be used to record monaural sounds into your applications. It can also be used to issue voice commands to applications that support such functions.

Since your computer has a built-in microphone and speaker, "feedback" may be heard under certain conditions. Feedback occurs when sound from the speaker is picked up in the microphone and amplified back to the speaker, which amplifies it again to the microphone.

This feedback occurs repeatedly and causes a very loud, high-pitched noise. It is a common phenomenon that occurs in any sound system when the microphone input is output to the speaker (throughput) and the speaker volume is too loud or too close to the microphone.

You can control throughput by adjusting the volume of your speaker or through the Mute function.

To adjust the volume or activate Mute in Windows 2000, click the **Start** button, point to **Settings** and click **Control Panel**. Double-click the **Sounds and Multimedia** icon and select the **Audio** tab. Click the **Volume** button in the **Sound Playback** group to open the **Volume Control** panel.

In Windows 98, click the **Start** button, point to `Settings`, and click `Control Panel`. Double-click the **Multimedia** icon, then select the `Audio` tab and double-click the icon in the `Playback` group to open the `Volume Control` panel.

In the `Volume Control` panel, you can use the `Microphone Volume` slide bars to adjust the volume level or click `Mute` at the bottom of the panel.

Internal modem

This section describes how to connect and disconnect the internal modem to and from a telephone jack. The internal modem is not supported in some marketing regions. Refer to the online help files for the internal modem for details on operation of your modem.

The internal modem does not support voice functions. All data and fax functions are supported.

In case of a lightning storm, unplug the modem cable from the telephone jack.

Do not connect the modem to a digital telephone line. A digital line will damage the modem.

Region selection

Telecommunication regulations vary from one region to another, so you will need to make sure the internal modem's settings are correct for the region in which it will be used.

Selection using Toshiba utility

This utility is used with Windows 2000/98.

1. Click **Start**, point to **Programs**, point to **TOSHIBA Internal Modem** and click **Region Select Utility**.

2. The Region Selection icon will appear in the Windows Task Bar.

The Region Selection icon

3. Click the icon with the primary mouse button to display a list of regions that the modem supports. A sub menu for telephony location information will also be displayed. A check will appear next to the currently selected region and telephony location.

4. Select a region from the region menu or a telephony location from the submenu.

   ■ When you click a region it becomes the modem's region selection, and the New Location for telephony will be set automatically.

   ■ When you select a telephony location, the corresponding region is automatically selected and it becomes the modem's current region setting.

5. Click the icon with the secondary mouse button to display the following menu.
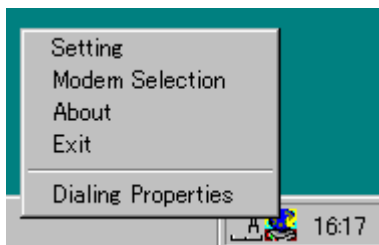
The Region Select Utility options

Setting

You can enable or disable the following settings:

AutoRun Mode

The region select utility starts automatically when you start up the operating system.

Open the Dialling Properties dialog box after selecting region.

The dialling properties dialog box will be displayed automatically after you select the region.

Location list for region selection.

A submenu appears displaying location information for telephony.

Open dialog box, if the modem and Telephony Current Location region code do not match.

A warning dialog box is displayed if current settings for region code and telephony location are incorrect.

If you use a storage device such as a CD-ROM drive or HDD connected to a 16-bit PC Card, modem speed might be slow or communication might be interrupted.

Modem selection

If the computer cannot recognise the internal modem, a dialog box is displayed. Select the COM port for your modem to use.

Dialling properties

Select this item to display the dialling properties.

Connecting

To connect the internal modem cable, follow the steps below.

1. Plug one end of the modular cable into the modem jack.

2. Plug the other end of the modular cable into a telephone jack.
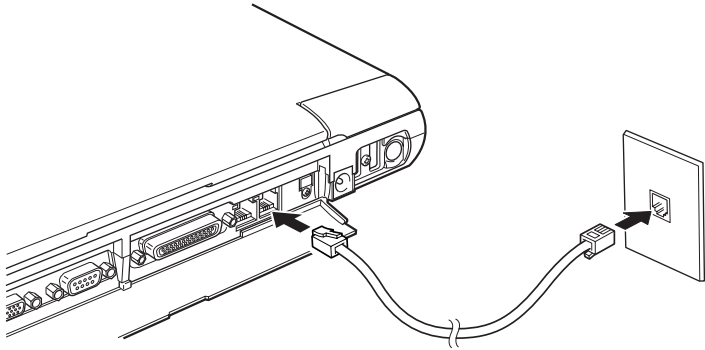
Connecting the internal modem

Disconnecting

To disconnect the internal modem cable, follow the steps below.

1. Pinch the lever on the connector in the telephone jack and pull out the connector.

2. Disconnect the cable from the computer in the same manner.

Cleaning the computer

To help ensure long, trouble-free operation, keep the computer free of dust and use care with liquids around the computer.

■ Be careful not to spill liquids into the computer. If the computer does get wet, turn the power off immediately and let the computer dry completely before you turn it on again.

■ Clean the computer using a slightly damp (with water) cloth. You can use glass cleaner on the display. Spray a small amount of cleaner on a soft, clean cloth and wipe the screen gently with the cloth.

Never spray cleaner directly onto the computer or let liquid run into any part of it. Never use harsh or caustic chemical products to clean the computer.

Moving the computer

The computer is designed for rugged durability. However, a few simple precautions taken when moving the computer will help ensure trouble-free operation.

■ Make sure all disk activity has ended before moving the computer. Check the **Disk** and **Slim Select Bay** indicators on the computer, the LED on the internal disk drive and the indicators on any external disk drives.

■ If a diskette is in the drive, remove it.

■ If a CD/DVD is in the drive, remove it. Also make sure the drawer is securely closed.

■ Disconnect the external diskette drive and all other peripherals before moving the computer.

■ Turn off the power to the computer.

■ Close the display. Do not pick up the computer by its display panel or back (where the connectors are located).

■ Close the power switch cover.

■ Disconnect the AC adaptor if it is connected.

■ Use the carrying case when transporting the computer.

Chapter 5

The Keyboard

The computer's keyboard layouts are compatible with a 101/102-key enhanced keyboard. By pressing some keys in combination, all the 101/102-key keyboard functions can be executed on the computer.

The number of keys on your keyboard depends on which country/region's keyboard layout your computer is configured with. Keyboards for numerous languages are available. These optional international keyboard layouts are illustrated in Appendix D, *Keyboard Layouts*.

There are five types of keys: typewriter keys, keypad overlay, function keys, soft keys and cursor control keys. The typewriter keys and keypad overlay keys are grey. The other keys are dark grey.

Typewriter keys

The typewriter keys, produce the upper and lowercase letters, numbers, punctuation marks, and special symbols that appear on the screen.

There are some differences, however, between using a typewriter and using a computer keyboard:

- Letters and numbers produced in computer text vary in width. Spaces, which are created by a "space character," may also vary depending on line justification and other factors.

- The lowercase l (el) and the number 1 (one) are not interchangeable on computers as they are on a typewriter.

- The uppercase O (oh) and the 0 (zero) are not interchangeable.

- The **Caps Lock** function key locks only the alphabetic characters in uppercase while the shift lock on a typewriter places all keys in the shifted position.

- The **Shift** keys, the **Tab** key, and the **BkSp** (backspace) key perform the same function as their typewriter counterparts but also have special computer functions.

F1...F12 function keys

The function keys, not to be confused with **Fn**, are the 12 keys at the top of your keyboard. These keys are dark grey, but function differently from the other dark grey keys.

F1 through **F12** are called function keys because they execute programmed functions when pressed. Used in combination with the **Fn** key, keys marked with icons execute specific functions on the computer. See the section, Soft keys: **Fn** key combinations, in this chapter. The function executed by individual keys depends on the software you are using.

Soft Keys: Alt Gr Key Combinations

The **Alt Gr** key, at the right of the space bar, is used in combination with other keys to create accented or special characters (#,@,|, etc.). Note that some of the keys at the top of the keyboard bear three symbols (not to be confused with the blue or white letters on the side of some other keys). To generate the third symbol, hold **Alt Gr** and press the key bearing the character you wish to create. Please note that since the **Alt Gr** key is not present on the American keyboard, it cannot be used if you have installed an American keyboard driver in MS-DOS or Windows.

The euro symbol

By pressing **Alt Gr** + **e** (**Alt Gr** + **5**, **Alt Gr** + **4** or **Alt Gr** + **u** on some keyboards) you can generate the Euro symbol. Windows 98 supports the Euro symbol natively. On Windows 95 and NT, only Arial, Times New Roman and Courier New fonts have the Euro symbol implemented. Please look at Microsoft web pages for newer patches and updates.

You may need to update the fonts on your printer to be able to print the Euro symbol properly.

Soft keys: Fn key combinations

The **Fn** (function) is unique to Toshiba computers and is used in combination with other keys to form soft keys. Soft keys are key combinations that enable, disable or configure specific features.

Some software may disable or interfere with soft-key operations. Soft-key settings are not restored by the Resume *feature.*

Emulating keys on enhanced keyboard
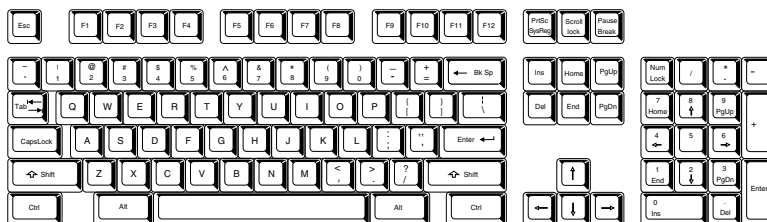
A 101-key enhanced keyboard layout

The keyboard is designed to provide all the features of the 101-key enhanced keyboard, shown above. The 101/102-key enhanced keyboard has a numeric keypad and scroll lock key. It also has additional **Enter**, **Ctrl** and **Alt** keys to the right of the main keyboard. Since the keyboard is smaller and has fewer keys, some of the enhanced keyboard functions must be simulated using two keys instead of one on the larger keyboard.

Your software may require you to use keys that the keyboard does not have. Pressing the **Fn** key and one of the following keys simulates the enhanced keyboard's functions.

Press **Fn + F10** or **Fn + F11** to access the integrated keypad. When activated, the grey keys with white markings on the bottom edge become numeric keypad keys (**Fn + F11**) or cursor control keys (**Fn + F10**). Refer to the *Keypad overlay* section in this chapter for more information on how to operate these keys. The power on default for both settings is off.

Press **Fn + F12 (ScrLock)** to lock the cursor on a specific line. The power on default is off.

Press **Fn + Enter** to simulate **Enter** on the enhanced keyboard's numeric keypad.

Press **Fn + Ctrl** to simulate the enhanced keyboard's right **Ctrl** key.

Press **Fn + Alt** to simulate the enhanced keyboard's right **Alt** key.

Hot keys

Hotkeys (**Fn** + a function or cursor key) let you enable or disable certain features of the computers.

Sound mute: Pressing **Fn + Esc** turns sound on or off. When you press these hotkeys, the current setting will be displayed in a window.

Instant security: Press **Fn + F1** to lock the keyboard and blank the screen to prevent others from accessing your data. Also, the HDD-off timing is set to one minute. To restore the screen and original settings, press any key or move the AccuPoint II. If you have set a screen saver password, a dialog will appear. Enter the password and click **OK**. If no screen saver password is set, the screen will be restored when you press any key or move the AccuPoint II.

Power save mode: Pressing **Fn + F2** changes the power save mode.

Press **Fn + F2** once to display the Power Save Mode in a window. Press the hotkeys again to change the setting. You can also change this setting through the *Plugged in* or *Running on batteries* item of the *Power Saver Properties* window in Power Saver.

Standby: Press **Fn + F3** to turn Standby mode on and off. When you press these hotkeys, the current setting will be displayed in a dialog box by default. A check box lets you select whether the dialog box will appear.

Hibernation: Press **Fn + F4** to turn Hibernation mode on and off. When you press these hotkeys, the current setting will be displayed in a dialog box by default. A check box lets you select whether the dialog box will appear.

Display selection: Press **Fn + F5** to change the active display device. When you press these hot keys a dialog box appears. Only selectable devices will be displayed. Hold down **Fn** and press **F5** again to change the device. When you release **Fn** and **F5**, the selected device will change. If you hold down the keys for three seconds the selection will return to **LCD**.

You cannot change the display brightness for 18 seconds after the LCD turns on. To protect display quality, the brightness level is set at the maximum value.

Wireless setting: Press **Fn + F8** to select either Bluetooth or wireless LAN or to turn off wireless communication.

Windows 98/2000 special keys

The keyboard provides two keys that have special functions in Windows: one activates the **Start** menu and the other has the same function as the secondary mouse button.

This key activates the Windows 98/2000 **Start** menu.

This key has the same function as the secondary mouse button.

Emulating Fn key on external keyboard

The **Fn** key is only on Toshiba keyboards. If you use an external keyboard attached to the computer, you can execute **Fn** key combinations by emulating the **Fn** key. See Chapter 7, *HW Setup and Passwords*, for details on setting the **Fn** key equivalent.

Fn Sticky key

You can use the Toshiba Accessibility Utility to make the **Fn** key sticky, that is, you can press it once, release it, and they press an "**F number**" key.

Keypad overlay

Your computer's keyboard does not have an independent numeric keypad, but its numeric keypad overlay functions like one.

The keys in the centre of the keyboard with white letters make up the numeric keypad overlay. The overlay provides the same functions as the numeric keypad on the 101/102-key enhanced keyboard in the next illustration.

Turning on the overlays

The numeric keypad overlay can be used for numeric data input or cursor and page control.

Arrow mode

To turn on the Arrow mode, press **Fn + F10**. Now try cursor and page control using the keys shown in the following illustration. Press **Fn + F10** again to turn off the overlay.

Numeric mode

To turn on the Numeric mode, press **Fn + F11**. Now try numeric data entry using the keys in shown in the following illustration. Press **Fn + F11** again to turn off the overlay.
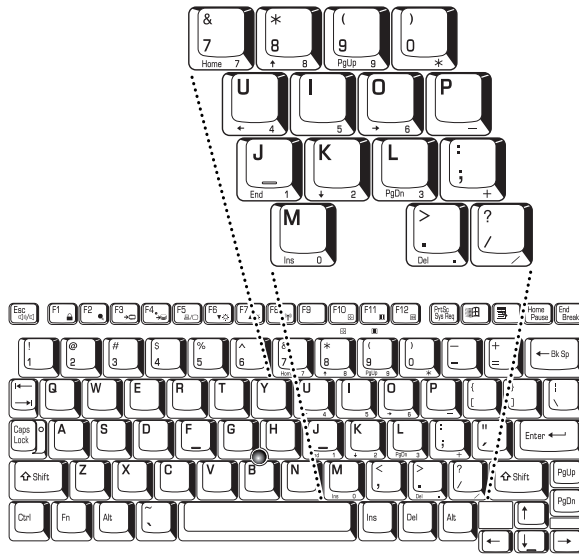
The numeric keypad overlay

Temporarily using normal keyboard (overlay on)

While using the overlay, you can temporarily access the normal keyboard without turning off the overlay:

1. Hold **Fn** and press any other key. All keys will operate as if the overlay were off.

2. Type upper-case characters by holding **Fn + Shift** and pressing a character key.

3. Release **Fn** to continue using the overlay.

Temporarily using overlay (overlay off)

While using the normal keyboard, you can temporarily use the keypad overlay without turning it on:

1. Press and hold down **Fn**.

2. Release **Fn** to return to normal keyboard operation.

Temporarily changing modes

If the computer is in **Numeric mode**, you can switch temporarily to **Arrow mode** by pressing a shift key.

If the computer is in **Arrow mode**, you can switch temporarily to **Numeric mode** by pressing a shift key.

Generating ASCII characters

Not all ASCII characters can be generated using normal keyboard operation. But, you can generate these characters using their ASCII codes.

With the overlay on:

1. Hold down **Alt**.

2. Using the overlay keys, type the ASCII code.

3. Release **Alt**, and the ASCII character appears on the display screen.

With the overlay off:

1. Hold **Alt** + **Fn**.

2. Using the overlay keys, type the ASCII code.

3. Release **Alt** + **Fn**, and the ASCII character appears on the display screen.

A list of ASCII characters with their codes is shown in Appendix G.

Chapter 6

Power and Power-Up Modes

The computer's power resources include the AC adaptor and internal batteries. This chapter gives details on making the most effective use of these resources including charging and changing batteries, tips for saving battery power, and power up modes.

Power conditions

The computer's operating capability and battery charge status are affected by the power conditions: whether an AC adaptor is connected, whether a battery is installed and what the charge level is for the battery.

Table 6-1 Power conditions

		Power on	Power off (no operation)

AC adaptor connected	Main battery fully charged	• Operates
		• LED: **Main battery** green
		        DC IN green
			• LED: **Main battery** green
			        DC IN green

	Main battery partially charged or no charge	• Operates
		• Quick charge[*1]
		• LED: **Main battery** orange
		        DC IN green
			• Quick charge[*1]
			• LED: **Main battery** orange
			        DC IN green

	No main battery installed	• Operates
		• No charge
		• LED: **Main battery** off
		        DC IN green
			• No charge
			• LED: **Main battery** off
			        DC IN green

	2nd battery fully charged	• Operates
		• LED: **Slim Select Bay** green
		        DC IN green
			• LED: **Slim Select Bay** green
			        DC IN green

	2nd battery partially charged or no charge	• Operates
		• Quick charge[*2]
		• LED: **Slim Select Bay** orange
		        DC IN green
			• Quick charge[*2]
			• LED: **Slim Select Bay** orange
			        DC IN green

	No 2nd battery installed	• Operates
		• No charge
		• LED: **Slim Select Bay** off
		        DC IN green
			• No charge
			• LED: **Slim Select Bay** off
			        DC IN green

		Power on	Power off (no operation)
AC adaptor not connected	Main battery charge is above low battery trigger point	• Operates • LED: **Main battery** off 　　　**DC IN** off	—
	Main battery charge is below low battery trigger point	• Operates • Alarm sounds[3] • LED: **Main battery** flashes 　　　orange 　　　**DC IN** off	—
	Main battery charge exhausted	Computer goes into Standby mode and shuts down[4]	—
	No main battery installed	• No operation[5] • LED: **Main battery** off 　　　**DC IN** off	—
	2nd battery charge is above low battery trigger point	• Operates • LED: **Slim Select Bay** off 　　　**DC IN** off	—
	2nd battery charge is below low battery trigger point	• Operates • LED: **Slim Select Bay** flashes 　　　orange 　　　**DC IN** off	—
	2nd battery charge are exhausted	Computer goes into Standby mode and shuts down[3]	—
	No 2nd battery is installed	• No operation[4] • LED: **Slim Select Bay** off 　　　**DC IN** off	—

The **Slim Select Bay** *indicator shows the status of a secondary battery.*

[1] When the main battery is not charging

[2] If a main battery and a secondary battery are installed, the computer does not enter Standby mode until the charge in both batteries is exhausted.

[3] When no secondary battery is installed

[4] When no main battery is installed

When batteries are charged, the main battery is charged first. When it is fully charged, the secondary battery is charged.

Power indicators

The **Main battery, Slim Select Bay**, **DC IN** and **Power** indicators on the system indicator panel alert you to the computer's operating capability and battery charge status.

Battery indicators

Check the **Main battery** indicator to determine the status of the main battery and the **Slim Select Bay** indicator to determine the status of the secondary battery. The following indicator lights indicate the battery status:

Flashing orange	The battery charge is low. The AC adaptor must be connected to recharge the battery.
Orange	Indicates the AC adaptor is connected and charging the battery.
Green	Indicates the AC adaptor is connected and the battery is fully charged.
No light	Under any other conditions, the indicator does not light.

If the battery becomes too hot while it is being charged, the charge will stop and the battery indicator will go out. When the battery's temperature falls to a normal range, charge will resume. This event occurs regardless of whether the power to the computer is on or off.

DC IN indicator

Check the **DC IN** indicator to determine the power status with the AC adaptor connected:

Green	Indicates the AC adaptor is connected and supplying proper power to the computer.
Flashing orange	Indicates a problem with the power supply. Plug the AC adaptor into another outlet. If it still does not operate properly, see your dealer.
No light	Under any other conditions, the indicator does not light.

Power indicator

Check the **Power** indicator to determine the power status.

Green	Indicates power is being supplied to the computer and the computer is turned on.
Blinking orange	Indicates the power was turned off while the computer was in Standby mode. The indicator turns on for one second and turns off for two seconds.
No light	Under any other conditions, the indicator does not light.

Battery types

The computer has three types of batteries:

■ Battery packs – main and secondary (option)
■ Real Time Clock (RTC) battery

Main battery

When the AC power cord is not connected, the computer's main power source is a removable lithium ion battery pack, also referred to in this manual as the main battery. You can purchase additional battery packs for extended use of the computer away from an AC power source.

The battery pack is a lithium ion battery, which can explode if not properly replaced, used, handled or disposed of. Dispose of the battery as required by local ordinances or regulations. Use only batteries recommended by Toshiba as replacements.

The main battery recharges the RTC batteries. The main battery maintains the state of the computer when you enable Standby.

When the computer is powered off in Standby mode, and the AC adaptor in not connected, the main battery pack and optional secondary battery pack supply power to maintain data and programs in memory. If the battery pack(s) is completely discharged, Standby does not function and the computer loses all data in memory.

The following message appears when you turn on the power:

```
WARNING: RESUME FAILURE.
PRESS ANY KEY TO CONTINUE.
```

Secondary battery (option)

An optional secondary battery can be installed in the Slim Select Bay to increase your battery operating time. Note the caution on Standby mode in the previous section *Main battery*.

The secondary battery pack is a lithium ion battery, which can explode if not properly replaced, used, handled or disposed of. Dispose of the battery as required by local ordinances or regulations. Use only batteries recommended by Toshiba as replacements.

Real Time Clock battery

The Real Time Clock (RTC) battery provides power for the internal real time clock and calendar. It also maintains the system configuration.

If the RTC battery becomes completely discharged, the system loses this data and the real time clock and calendar stop working. The following message appears when you turn on the power:

*** Bad RTC battery ***
Check system. Then press [F1] key . . . . .

The computer's RTC battery is a nickel metal hydride (NiMH) battery and should be replaced only by your dealer or by a Toshiba service representative. The battery can explode if not properly replaced, used, handled or disposed of. Dispose of the battery as required by local ordinances or regulations.

Care and use of the battery pack

The battery pack is a vital component of portable computing. Taking proper care of it will help ensure longer operating time on battery power as well as a longer life for your battery pack. Follow the instructions in this section carefully to ensure safe operation and maximum performance.

Safety precautions

1. Be very careful not to short-circuit the battery pack. Contacting both terminals with a metal object can cause injury, fire or damage to the battery pack.

2. Do not overcharge, reverse charge, mutilate or disassemble the battery. Any one of those actions could release toxic materials, hydrogen and/or oxygen or other electrolytic substances or cause an increase in the battery's surface temperature.

3. Do not expose the battery pack to fire; the battery pack could explode.

4. Battery packs contain toxic substances. Do not dispose of them with ordinary trash. Dispose of battery packs only in accordance with local ordinances. Always cover the metal terminals with insulating tape to avoid short circuits.

5. If the battery has leaked or been vented, it should be replaced immediately. Use protective gloves when handling a damaged battery.

6. When it becomes necessary to replace the main battery, it must be replaced only by an identical battery from the same manufacturer.

7. Do not expose the battery pack terminals to any metal object other than the computer contacts. Wrap it or place it in a plastic bag when transporting it.

8. When you install the battery pack, you should hear a click when it is seated properly.

9. Charge the battery pack only in the computer or in a battery charger designated as an approved option.

10. Reverse polarity should be avoided with all batteries. The main battery is designed so that it cannot be installed in reverse polarity.

Charging the batteries

When the power in the battery pack becomes low, the **Battery** indicator flashes orange indicating that only a few minutes of battery power remain. If you continue to use the computer while the **Battery** indicator flashes, the computer enables Standby mode (so you don't lose data) and automatically turns off.

You must recharge a battery pack when it becomes discharged.

Procedures

To recharge a battery pack while it is installed in the computer, connect the AC adaptor to the **DC IN** socket and plug the other end into a working outlet.

The **Battery** indicator glows orange when the battery is being charged. If the AC adaptor is connected before the main battery or the optional secondary battery is installed, the battery that is installed first will be charged first, otherwise, the main battery will be charged first.

Use only the computer connected to an AC power source or the optional Toshiba Battery charger to charge the battery pack. Do not attempt to charge the battery pack with any other charger.

Time

The following table shows the approximate time required to fully charge a discharged battery.

Battery type	Charging time (hours)	
	Power on	**Power off**
Main battery pack	3.0 to 8.0 or longer	3.0
Secondary battery pack	3.0 to 8.0 or longer	3.0
RTC battery	50	Doesn't charge

Battery charging notice

The battery may not charge right away under the following conditions:

■ The battery is extremely hot or cold. To make sure the battery charges to its full capacity, charge the battery at room temperature of 10° to 30°C (50° to 88°F).

■ The battery is nearly completely discharged. Leave the AC adaptor connected for a few minutes and the battery should begin charging.

Once a battery pack is fully charged, it is recommended that you operate the computer only on battery power until the battery pack completely discharges. Doing so extends battery life and helps ensure accurate monitoring of battery capacity.

The **Battery** indicator may show a rapid decrease in battery operating time when you try to charge a battery under the following conditions:

■ The battery has not been used for a long time.

■ The battery has completely discharged and been left in the computer for a long time.

■ A cool battery is installed in a warm computer.

In such case, follow the steps below.

1. Fully discharge the battery by leaving it in the computer with the power on until the power automatically shuts off.

2. Plug in the AC adaptor.

3. Charge the battery until the **Battery** indicator glows green.

Repeat these steps two or three times until the battery recovers normal capacity.

Monitoring battery capacity

Remaining battery power can be monitored in the **Power Save Modes** window in Power Saver of Windows 98/2000.

Wait at least 16 seconds after turning on the computer, installing/removing a battery or connecting/disconnecting an AC adaptor before trying to monitor the remaining operating time. The computer needs this time to check the battery's remaining capacity and to calculate the remaining operating time, based on the current power consumption rate and remaining battery capacity. The actual remaining operating time may differ slightly from the calculated time. If no battery is installed, N/A is displayed.

With repeated discharges and recharges, the battery's capacity will gradually decrease. Therefore, an often used, older battery will not operate for as long as a new battery even when both are fully charged. In this case, Toshiba Power Extensions *will indicate a 100% charge for both the old and new battery, but the displayed estimated time remaining will be shorter for the older battery.*

Maximising battery operating time

A battery's usefulness depends on how long it can supply power on a single charge.

How long the charge lasts in a battery depends on:

- How you configure the computer (for example, whether you enable battery-power saving options) The computer provides a battery save mode to conserve battery power. This mode has the following options:
  - System Auto Off
  - Display Auto Off
  - LCD Brightness

  See Chapter 7, *HW Setup and Passwords*.
- How often and how long you use the hard disk, CD-ROM, DVD-ROM and the diskette drive.
- How much charge the battery contained to begin with.
- How you use optional devices, such as a PC card, to which the battery supplies power.
- Enabling Standby mode conserves battery power if you are frequently turning the computer off and on.
- Where you store your programs and data.
- Closing the display when you are not using the keyboard saves power.
- Operating time decreases at low temperatures.
- The condition of the battery terminals. Make sure the battery terminals stay clean by wiping them with a clean dry cloth before installing the battery pack.

Retaining data with power off

When you turn off your computer with fully charged batteries, the batteries retain data for the following approximate time periods:

Battery pack	5 days
RTC battery	1 month

Extending battery life

To maximise the life of your battery pack:

■ If you have extra battery packs, rotate their use.

■ If you will not be using the system for an extended period, remove the battery pack.

■ Disconnect the AC adaptor when the battery is fully charged. Overcharging makes the battery hot and shortens life.

■ Store spare battery packs in a cool dry place out of direct sunlight.

Replacing the battery pack

When the battery pack reaches the end of its operating life you will need to install a new one. The life of the battery pack is generally about 500 recharges. If the **Battery** indicator flashes orange shortly after fully recharging the battery, the battery pack needs to be replaced.

You might also replace a discharged battery pack with a charged spare when you are operating your computer away from an AC power source. This section explains how to remove and install battery packs.

When handling battery packs, be careful not to short circuit the terminals. Also do not drop, hit or otherwise apply impact; do not scratch or break the casing and do not twist or bend the battery pack.

The battery pack is a lithium ion battery, which can explode if not properly replaced, used, handled or disposed of. Dispose of the battery as required by local ordinances or regulations. Use only batteries recommended by Toshiba as replacements.

Removing the battery pack

To replace a discharged battery pack, follow the steps below.

1. Save your work.
2. Turn the computer's power off. Make sure the **Power** indicator is off.
3. Remove all cables connected to the computer.
4. Turn the computer upside down and slide the battery lock to the unlock position.
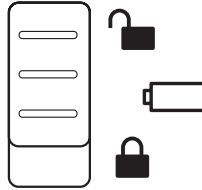
5. Pull out the battery pack to remove it.
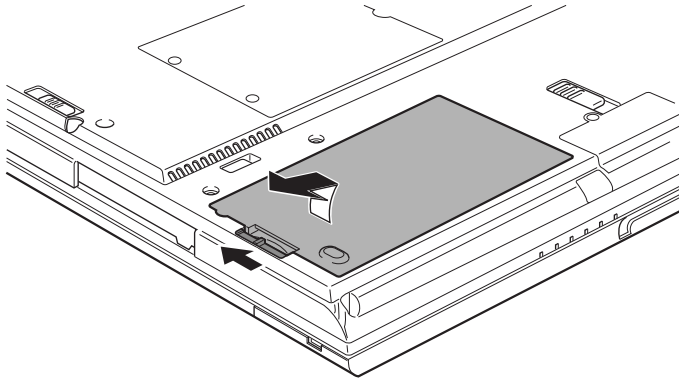
Removing the battery pack

Installing the battery pack

To install a battery pack, follow the steps below.

1. Turn the computer's power off.

2. Make sure to slide the battery lock to the unlock position, then carefully insert the new or recharged battery pack.

3. Press firmly to ensure a good connection then push the battery lock to the lock position into place.
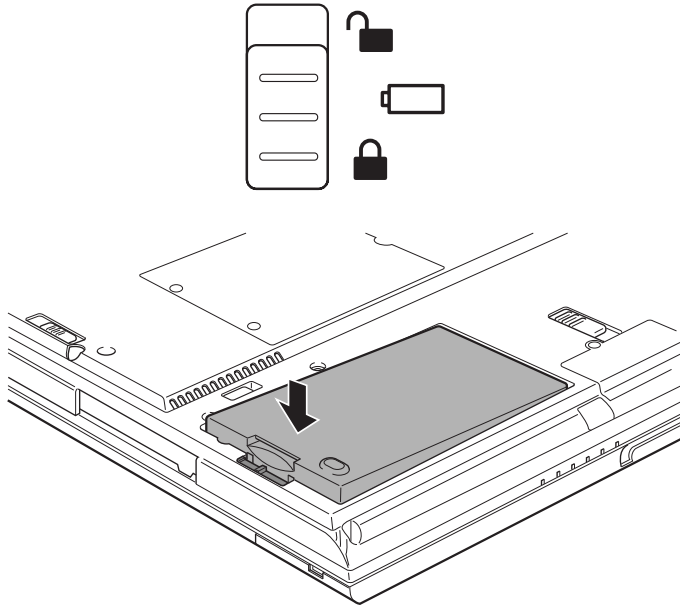
Securing the battery cover and lock

Starting the computer by password

If you registered a password as supervisor or user, you must enter it to start the computer.

To start up the computer with the password, follow these steps:

1. Turn on the computer as described in Chapter 3, *Getting Started*, and the following message appears:

Password =

At this point, hotkeys do not function. After you enter the password, **Fn** + **F5** *will function. Other hot keys will function after the Windows operating system starts.*

2. Enter the password.

3. Press **Enter**. The computer displays the message below while it starts up.

Valid password entered, system is now starting up.

If you have set a password and the computer boots by the alarm Power On function and Standby *is on, the computer will start with the instant security function enabled. The* **password =** *message is not displayed; however, you must enter the password to use the computer.*

If you enter the password incorrectly three times in a row, the computer shuts off. In this case, you must turn the computer back on to retry password entry.

Chapter 7

HW Setup and Passwords

This chapter explains how to use Toshiba HW Setup program to configure your computer and how to set passwords.

HW Setup

Toshiba HW Setup lets you configure settings for Pointing Devices, Display, CPU, Boot Priority, Keyboard, USB, LAN, General, Password, Device Config and Parallel/Printer.

If the supervisor password is set, access to the Toshiba HW Setup program can be prevented when the user password is used to log on to the computer.

Refer to the Supervisor password readme file for details on enabling/disabling access to HW Setup. The path to the readme *file is* `C:\ProgramFiles\Toshiba\Windows Utilities\SVPWTool`. *In the* `SVPWTool` *directory, open the* **readme.htm** *file.*

Accessing HW Setup

To run HW Setup, click **Start**, point to **Settings**, click **Control Panel** and double-click **Toshiba HW Setup**.

HW Setup window

The HW Setup window contains the following tabs: Pointing Devices, Display, CPU, Boot Priority, Keyboard, USB, LAN, General, Password, Device Config and Parallel/Printer.
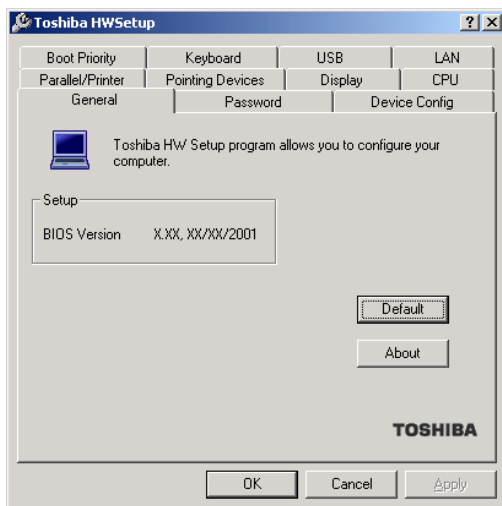
HW setup window

There are also three buttons: **OK**, **Cancel** and **Apply**.

OK	Accepts your changes and closes the HW Setup window.
Cancel	Closes the window without accepting your changes.
Apply	Accepts all your changes without closing the HW Setup window.

General

This window displays the BIOS version and contains two buttons: **Default** and **About**.

Default	Return all HW Setup values to the factory settings.
About	Display the HW Setup version..

Setup

This field displays **BIOS Version** and date.

Password

User Password

This option allows you to set or reset the user password for power on.

Not Registered	Change or remove the password. (Default)
Registered	Set the password. A dialog box will appear to let you set the password.

To enter a user password:

1. Select **Registered** to display the following prompt:

Enter Password:

2. Enter a password of up to 10 characters. The character string you enter is displayed as a string of asterisks. For example, if you enter a password consisting of four characters, the display is shown as:

Enter Password: ****

If you click the **OK** *button before entering the password,* **Not registered** *will appear on the display.*

3. Click the **OK** button. The following message appears, allowing you to verify the password.

Verify Password:

4. If character strings match, the password is registered and the display changes to:

Registered

If they do not match, the following message appears. You must repeat from step 1.

Entry Error!!!

To delete a user password:

1. Select **Not Registered** to display the following prompt:

Enter Password:

2. Enter the currently registered password. The character string you enter is displayed as a string of asterisks.

Enter Password: ****

If you click the **OK** *button before entering the password,* **Registered** *will appear on the display.*

3. Click the **OK** button. If the character string you enter matches the registered password, the password option is reset and the display changes to:

Not registered

If they do not match, the following message appears. You must repeat step 1.

Incorrect Password!!!

If you enter the password incorrectly three times, the screen will display:
Sorry, access denied!!! Powering off your machine then powering it back on again are required to regain access.
You will not be able to access the password option in the HW Setup. In this case you must turn the power off and back on to retry the procedure.

4. Follow the same procedures described in the earlier section, *How to set the password*, to set a new user password.

Refer to the *Supervisor password* section later in this chapter for details on setting the supervisor password.

Device Config

Device Configuration

This option lets you set the device configuration.

All Devices	BIOS sets all devices.
Setup by OS	Operating system sets devices that it can control.

Parallel/Printer

This tab lets you set the Printer Port Type. Use the Windows Device Manager to make settings for the Parallel port.

Parallel Port Mode

The options in this tab are **ECP** and **Standard Bi-directional**.

ECP	Sets the port type to Extended Capabilities Port (ECP). For most printers, the port should be set to **ECP**. (Default)
Standard Bi-directional	This setting should be used with some other parallel devices.

Pointing Devices

Pointing Devices

This tab lets you select **Auto-Selected** and **Simultaneous**.

Auto-Selected	If a PS/2 mouse is connected to the computer when you turn on the power, the PS/2 mouse is enabled and the AccuPoint II is disabled. Otherwise, the AccuPoint II is enabled. (Default)
Simultaneous	Enables both the AccuPoint II and a PS/2 mouse.

Display

This tab lets you customise your computer's display settings for either the internal LCD screen or for an external monitor.

Power On Display

Lets you set the display to be used when the computer is booted.

Auto-Selected	Selects an external monitor if one is connected. Otherwise, it selects the internal LCD. (Default)
Simultaneous	Selects both the internal LCD and external monitor for simultaneous display.

You cannot select TV display in HW Setup. To display on a TV screen use hot keys **Fn + F5**. *Refer to* Chapter 5, *The Keyboard.*

CPU

Dynamic CPU Frequency Mode

This option lets you choose from the following settings:

Dynamically Switchable	CPU power consumption and clock speed automatic switching function is enabled. When the computer is in use, CPU operation is automatically switched when necessary. (Default)
Always High	CPU power consumption and clock speed automatic switching function is disabled. The CPU always runs at its fastest speed.
Always Low	CPU power consumption and clock speed automatic switching function is disabled. The CPU always runs at low power consumption and low speed.

Boot Priority

Boot Priority Options

This option sets the priority for booting the computer. Select from the following settings:

HDD → FDD → CD-ROM → LAN	The computer looks for bootable files in the following order: HDD, USB diskette drive, CD-ROM* and LAN. (Default)
FDD → HDD → CD-ROM → LAN	The computer looks for bootable files in the following order: USB diskette drive, HDD, CD-ROM* and LAN.
HDD → CD-ROM → LAN → FDD	The computer looks for bootable files in the following order: HDD, CD-ROM*, LAN and USB diskette drive.
FDD → CD-ROM → LAN → HDD	The computer looks for bootable files in the following order: USB diskette drive, CD-ROM*, LAN and HDD.
CD-ROM → LAN → HDD → FDD	The computer looks for bootable files in the following order: CD-ROM*, LAN, HDD, USB diskette drive.
CD-ROM → LAN → FDD → HDD	The computer looks for bootable files in the following order: CD-ROM*, LAN, USB diskette drive and HDD.

* In this computer, CD refers to the DVD-ROM or CD-RW/DVD-ROM drives.

You can override the settings and manually select a boot device by pressing one of the following keys while the computer is booting:

U	Selects the USB diskette drive.
1	Selects the primary HDD.
2	Selects the secondary HDD.
P	Selects the PC card HDD.
C	Selects the DVD-ROM or CD-RW/DVD-ROM.

This procedure does not affect the settings.

PC card HDD boot is supported only by slot 0 on the computer. Support is guaranteed only for Toshiba PC card HDDs.

When you assign a PC card HDD top priority, "PC" is not displayed. However, the PC card HDD takes the position of HDD in the Boot Priority Options list above.

Power on Boot Select

When this option is enabled, you can change the boot drive during start up. The following message will appear for one or two seconds **Press [F12] for the boot drive selection menu**.

> **Enabled** (Default)

> **Disabled**

To change the boot drive, follow the steps below.

1. Press **F12** while the above message is on the screen.

2. The following menu will be displayed:

```
Select Boot Device
[C]: CD-ROM
[N]: Network (LAN)
[U]: USB Floppy Drive
[1]: Primary Hard Drive (Built-in)
[2]: Secondary Hard Drive (Select Bay)
[P]: PC Card Hard Drive
[D]: Default SYSTEM SETUP Device
Press [C], [N], [U], [1], [2], [P] or [D]
```

If a supervisor password is set, the menu above does not appear when you use the user password to start the computer.

In this computer, CD refers to the DVD-ROM, CD-R/RW or CD-RW/DVD-ROM drives.

Press the key (**C**, **N**, **U**, **1**, **2**, **P** or **D**) corresponding to the desired device.

The selection method above does not change the boot priority settings in HW Setup.

If you press a key other than one of those above or if the selected device is not installed, the system will boot according to the current setting in HW Setup.

HDD Priority Options

This option lets you set the boot priority for the HDD if more than one is installed in the computer.

`Built-in HDD -> Second HDD`	The built-in HDD is checked first for the boot command, then the HDD installed in the Slim Select Bay. (Default)
`Second HDD -> Built-in HDD`	The HDD installed in the Slim Select Bay is checked first for the boot command, then the built-in HDD.

Keyboard

External Keyboard Fn key

Use this option to set a key combination on an external keyboard to emulate the **Fn** key on the computer's internal keyboard. Setting an **Fn** key equivalent will let you use "Hotkeys" by pressing the set combination instead of the **Fn** key. (PS/2 keyboard only)

`Disabled`	No **Fn** key equivalent (Default)

`Fn Equivalent`	`Left Ctrl + Left Alt`
	`Right Ctrl + Right Alt`
	`Left Alt + Left Shift`
	`Right Alt + Right Shift`
	`Left Alt + Caps Lock`

*If you select **Left Ctrl + Left Alt** or **Right Ctrl + Right Alt** for this option, you cannot use the selected keys to reboot the computer in combination with the **Del** key. For example, if you select **Left Ctrl + Left Alt**, you must use **Right Ctrl**, **Right Alt** and **Del** to reboot the computer. **Left Ctrl**, **Left Alt** and **Del** cannot be used.*

USB

USB KB/Mouse Legacy Emulation

Use this option to enable or disable USB KB/Mouse Legacy Emulation. If your operating system does not support USB, you can still use a USB mouse and keyboard by setting the **USB KB/Mouse Legacy Emulation** item to **Enabled**.

Enabled	Enables the USB KB/Mouse Legacy Emulation. (Default)
Disabled	Disables the USB KB/Mouse Legacy Emulation.

USB-FDD Legacy Emulation

Use this option to enable or disable USB-FDD Legacy Emulation.

Enabled	Enables the USB-FDD Legacy Emulation. (Default)
Disabled	Disables the USB-FDD Legacy Emulation.

LAN

Wake-up on LAN

This features lets the computer's power be turned on when it receives a wake-up signal from the LAN.

Enabled	Enables Wake-up on LAN.
Disabled	Disables Wake-up on LAN. (Default)

Do not install or remove an optional memory module while Wake-up on LAN is enabled.

Built-in LAN

Enabled	Enables built-in LAN functions. (Default)
Disabled	Disables built-in LAN functions.

Supervisor password

Refer to the readme file of the Supervisor Password Utility for instructions on setting the Supervisor Password.

The path to the readme file is **`C:\ProgramFiles\Toshiba\Windows Utilities\SVPWTool`**. In the **`SVPWTool`** directory, open the **readme.htm** file.

Chapter 8

Optional Devices

Optional devices can expand the computer's capabilities and its versatility. This chapter describes connection or installation of the following types of devices:

Cards/memory

- ■ PC cards
- ■ SD card
- ■ Memory modules

Power devices

- ■ Additional battery pack
- ■ Secondary battery pack
- ■ Additional AC adaptor
- ■ Battery charger

Peripheral devices

- ■ Hard disk drive pack
- ■ Slim Select Bay HDD Adaptor
- ■ USB diskette drive
- ■ Advanced Port Replicator
- ■ iLINK (IEEE1394)
- ■ Parallel printer
- ■ External monitor
- ■ Television
- ■ PS/2 mouse
- ■ PS/2 keyboard

PC cards

The computer is equipped with a PC card (PCMCIA) expansion slot that can accommodate two 5 mm Type II cards or one 10.5 mm Type III card. Any PC card that meets industry standards (manufactured by Toshiba or other vendor) can be installed. The slots support 16-bit PC cards, including PC Card 16's multi-function card and CardBus PC cards.

CardBus supports the new standard of 32-bit PC Cards. The bus provides superior performance for the greater demands of multimedia data transmission.

If you use a storage device such as a CD-ROM drive or HDD connected to a 16-bit PC Card, modem speed might be slow or communication might be interrupted.

Use a point size 0 Phillips screwdriver.

Installing a PC card

Two PC card connectors are located one above the other on the left side of the computer. Both connectors are accessed from the same slot. You can install two Type II cards, one in each connector, or one Type III card in the bottom connector.

To install a PC card, follow the steps below.

1. Insert the PC card and press gently to ensure a firm connection. When the card is fully inserted, the eject button will pop out partially.

2. Pull the eject button out fully, then fold it down.
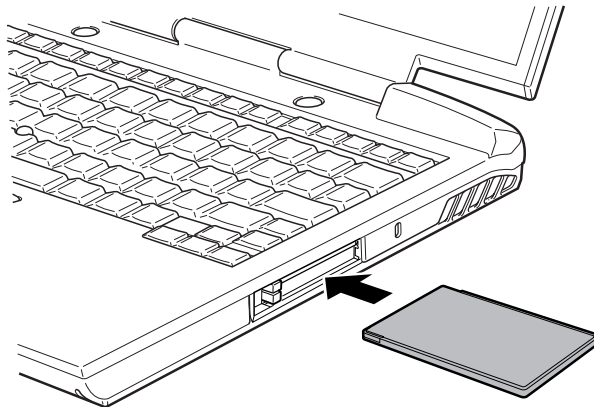
Inserting a PC card

3. To inhibit unauthorised removal of a card, secure the PC card lock as described later in this section.

After installing the card, check the configuration in the computer's Hardware Setup or HW Setup program to make sure it is appropriate for your card.

Removing a PC card

Before you remove a PC card, refer to the card's documentation and to your operating system documentation for proper procedures and precautions.

1. If the PC card lock is secured in the lock position, set it in the unlock position, as described later in this section.

2. Push the eject button in to pop the card out slightly, then grasp the card and pull it out.
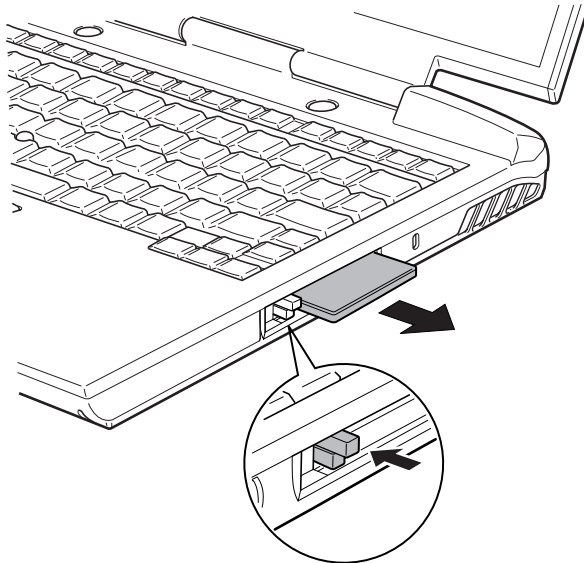
Removing a PC card

Using the PC card lock

You can secure the PC card lock with a screw to inhibit unauthorised removal of PC cards from the computer.

Use a point size 0 Phillips screwdriver.

Locking the PC card slot

To lock the PC card slot, follow the steps below.

1. When the computer is shipped, a screw secures the PC card lock in the unlocked position. Remove the screw.

2. Slide the PC card lock to the locked position. A metal tongue will cover the PC card slot.

3. Secure the screw.

Securing the PC card lock in the lock position

Unlocking the PC card slot

To unlock the PC card slot, follow the steps below.

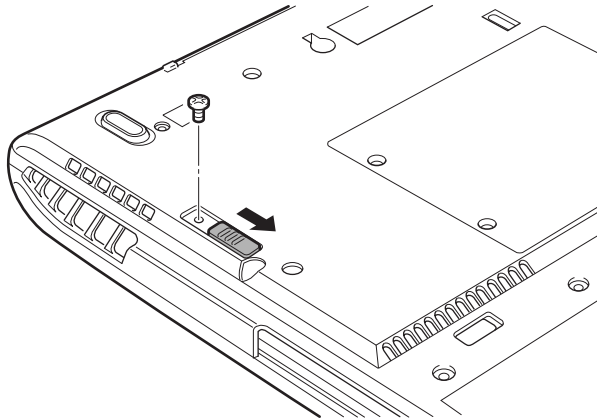1. Remove the screw securing the PC card lock.
2. Slide the PC card lock to the unlocked position. The metal tongue covering the PC card slot will be retracted.
3. Secure the PC card lock with the screw.
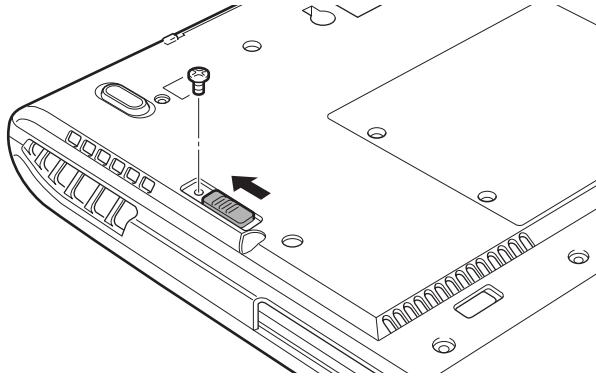
Securing the PC card lock in the unlock position

SD Cards

The computer is equipped with a SD Card slot that can accommodate Secure Digital flash memory cards with capacities of 8 MB, 16 MB, 32 MB, 64 MB and 128 MB. Higher capacities will be available. SD cards let you easily transfer data from devices, such as digital cameras and Personal Digital Assistants, that use SD Card flash-memory. The cards have a high level of security and copy protection features.

The slot does not support MultiMedia Cards.

Keep foreign objects out of the SD Card slot. A pin or similar object can damage the computer's circuitry.

Installing an SD card

Insert the SD Card and press gently to ensure a firm connection
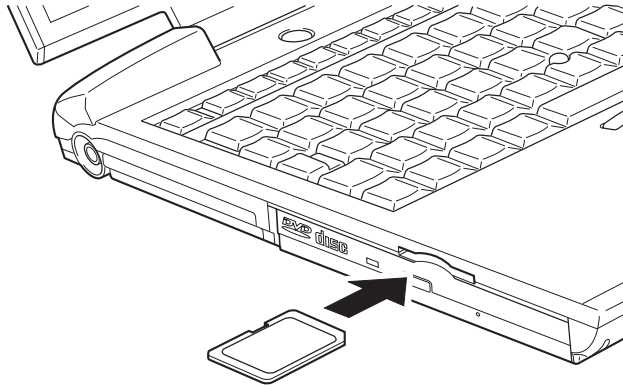
Inserting an SD card

Removing an SD card

To remove an SD card, follow the steps below.

1. Open the **Remove device** icon on the system tray and disable the SD or PC card. Make sure that a message allowing removal of the card is displayed.

2. Push the SD card in, and the SD card pops out slightly. Grasp the card and pull it out.
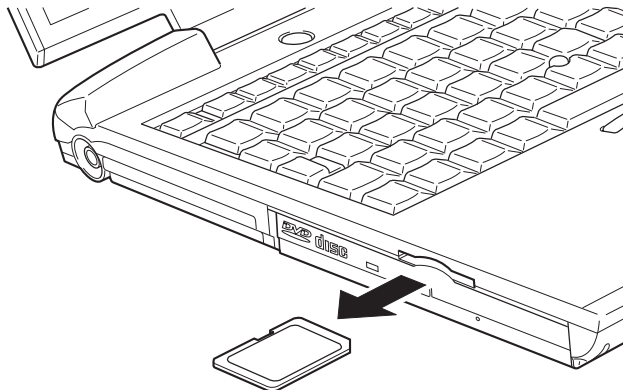
Removing an SD card

Memory expansion

You can install additional memory in the computer's memory module socket to increase the amount of RAM.

A 128MB , 256 MB or 512MB memory module is preinstalled in slot A. You can install an expansion memory module in slot B; however, you cannot operate the computer with a module installed in slot B only.

Only memory modules with the following parts numbers can be installed:

PA3085U-1M12:   128 MB

PA3086U-1M25:   256 MB

PA3108U-1M51:   512MB

Memory modules designed for earlier model computers can be physically installed, but they will not work. In this case, the computer will sound a warning beep and discontinue the start-up. . The following message will also be displayed: `Please remove the incompatible memory module in Slot X` *(X represents A or B). Remove the memory module if it is not listed above. Also, refer to* Chapter 9, *Troubleshooting.*

## Installing the memory module

Use a point size 0 Phillips screwdriver.

To install a memory module, make sure the computer is in Boot mode then:

1. Turn the computer off.

Do not try to install a memory module with the computer turned on. You can damage the computer and the module.

2. Remove all cables connected to the computer and turn the computer upside down.

3. Remove the main battery and optional secondary battery.

4. Remove two screws securing the memory module cover.

5. Lift off the cover.
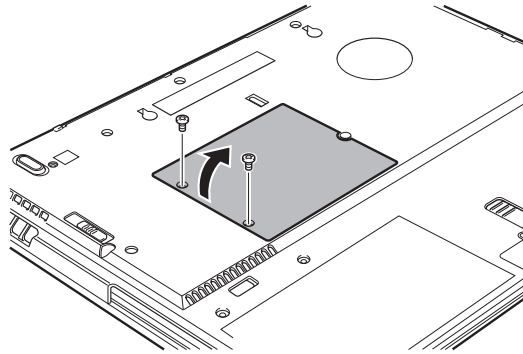
Removing the cover

6. Insert the memory module into the connector on the computer. Press the module carefully and firmly to ensure a solid connection.

7. Push the module down so that it lies flat and is secured by two latches.

Do not touch the connectors on the memory module or on the computer. Debris on the connectors may cause memory access problems.
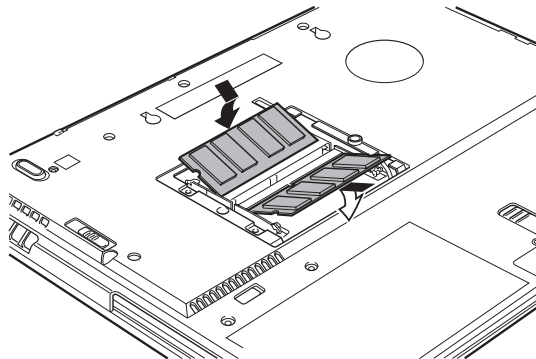
Inserting the memory module

8. Seat the cover and secure it with two screws.

9. When you turn the computer on, it should automatically recognise the total memory capacity. Use the HW Setup program to verify that the added memory is recognised. If it is not recognised, check the module's connection.

Removing the memory module

Use a point size 0 Phillips screwdriver.

To remove the memory module, make sure the computer is in boot mode then:

1. Turn the computer off.

Do not try to remove a memory module with the computer turned on. You can damage the computer and the memory module.

2. Remove all cables connected to the computer and turn the computer upside down.
3. Remove the main battery and optional secondary battery.
4. Remove two screws securing the memory module cover.
5. Lift off the cover.
6. Use a slender object such as a pen to press two latches on either side of the memory module to the outside. The memory module will pop up.
7. Grasp the memory module by the sides and pull it out.

Do not touch the connectors on the memory module or on the computer. Debris on the connectors may cause memory access problems.
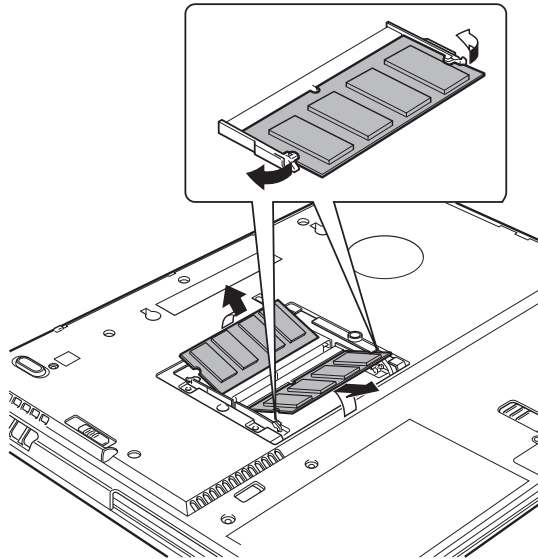
Removing the memory module

8. Seat the cover and secure it with two screws.

If only one memory module is installed, use slot A. Do not try to operate the computer with a module installed in slot B only.

Hard disk drive pack

An extra HDD expands the flexibility of your system and lets you carry your data without carrying the computer.

Use a point size 0 Phillips screwdriver.

Removing the HDD pack

To remove the HDD pack, follow the steps below and refer to the figures below.

1. Set the computer to boot mode and turn off the power.
2. Disconnect the AC adaptor and all external cables connected to the computer.
3. Remove the main battery and optional secondary battery.
4. Turn the computer upside down and remove two screws securing the HDD cover.
5. A small row of ridges mark latches securing the cover. Press on these ridges until you hear a click.
6. Press on the arrows and lift the cover up and out to remove it.
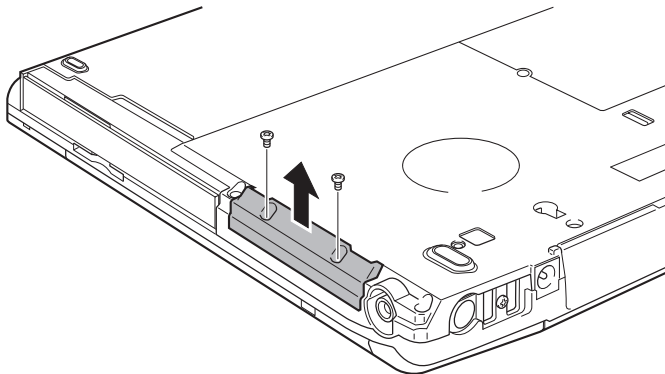
Removing the HDD pack cover

7. Pull out the HDD's plastic tab and pull it straight out to remove the HDD.
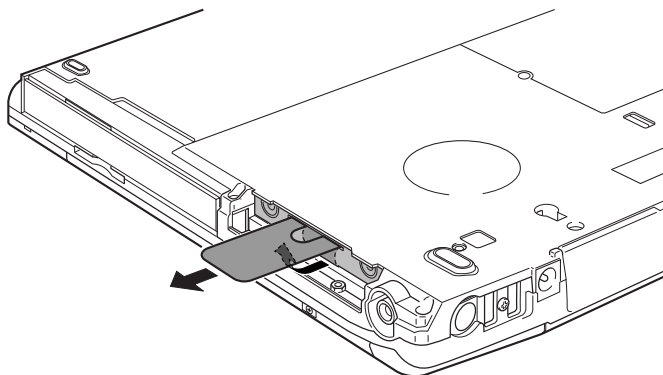
Removing the HDD pack

Installing the HDD pack

To install the hard disk drive, follow the steps below.

1. Fold over the plastic tab so that it goes into the HDD slot. Press to ensure a firm connection.

2. Insert the HDD into the slot.
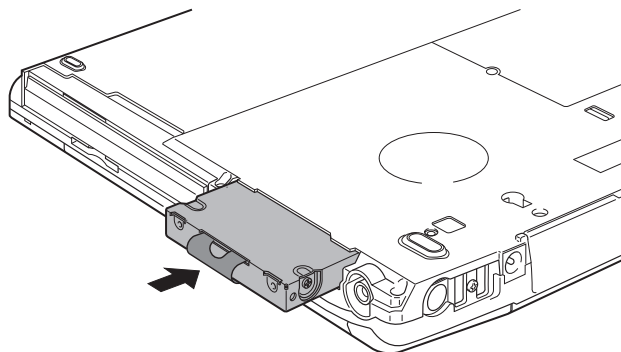
Installing the HDD pack

3. Seat the cover and press down until the latches click into place.

4. Secure the cover with two screws.

Slim Select Bay HDD adaptor

Integrated 2 ½" HDDs are available for installation in the Slim Select Bay.

To install an HDD in the Slim Select Bay HDD adaptor follow the steps below.

1. Slide the lock to the unlock position and open the lid.
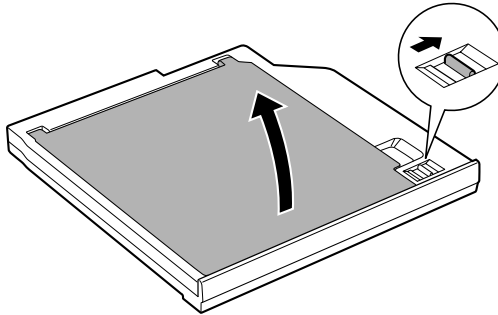
Opening the lid

2. Insert the HDD and push forward to ensure a firm connection.
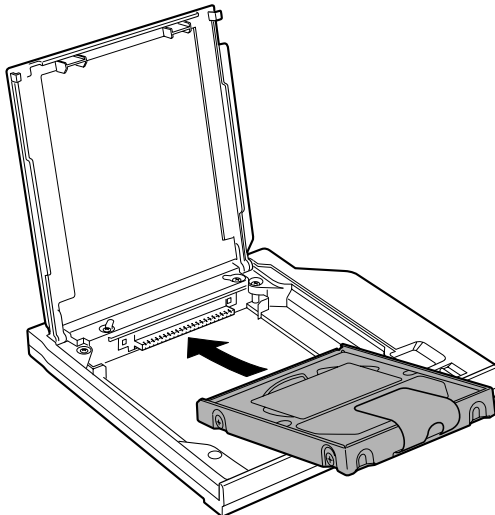
Installing the HDD

3. Close the lid and slide the lock to the lock position.
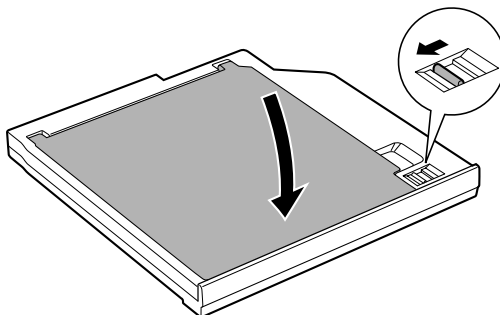
Closing the lid

For details on installing the Slim Select Bay HDD Adaptor, refer to Chapter 4, *Operating Basics*.

Using 3 ½" diskette drive

An optional 3 ½" diskette drive module connects to the USB port.

DISK-IN-USE INDICATOR

DISKETTE SLOT
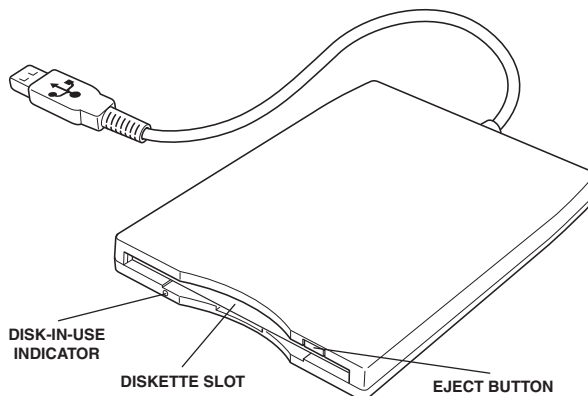
EJECT BUTTON

The 3 ½" diskette drive

Eject button	When a diskette is fully seated in the drive, the eject button pops out. To remove a diskette, push in the eject button and the diskette pops out partially for easy removal.
Diskette slot	Insert diskettes in this slot.
Disk-In-Use Indicator	This indicator lights when the diskette is being accessed.

Check the **Disk-In Use** *indicator when you use the diskette drive. Do not press the eject button, disconnect a drive cable or turn off the computer while the light is glowing. Doing so could destroy data and damage the diskette or the drive.*

The 3 ½" diskette drive should be placed on a flat, horizontal surface when in use. Do not set the drive on an incline greater than 20º while it is operating.

Do not set anything on top of the diskette drive.

Connecting 3 ½" diskette drive

To connect the drive, plug the diskette drive connector into a USB port.

> *Make sure the connector is right side up and properly aligned with the socket. Do not try to force the connection, doing so can damage the connecting pins.*
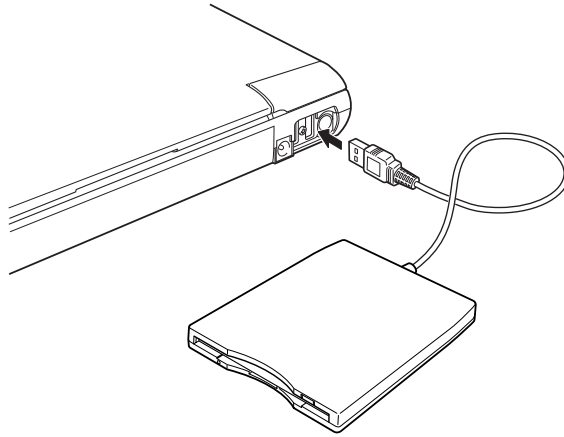
Connecting the diskette drive to the computer

> *If you connect the diskette drive after turning on the computer, it will take about 10 seconds for the computer to recognise the drive. Do not disconnect and reconnect before 10 seconds has elapsed.*

Disconnecting 3 ½" diskette drive

When you have finished using the diskette drive, follow the procedures below to disconnect it:

1. Wait for the indicator light to go out to make sure all diskette activity has stopped.

> *If you disconnect the diskette drive or turn off the power while the computer is accessing the drive you may lose data or damage the diskette or the drive.*

2. Pull the diskette drive connector out of the USB port.

Additional battery pack

You can increase the portability of the computer with additional battery packs. If you're away from an AC power source and your battery runs low, you can replace it with a freshly charged battery. See Chapter 6, *Power and Power-Up Modes*.

Secondary battery

You can install a secondary battery in the computer's Slim Select Bay. The battery comes with an adaptor. For details on using the adaptor, follow the steps below. For details on installing modules in the Slim Select Bay, refer to Chapter 4, *Operating Basics*.

Installing

To install the secondary battery in the adaptor, follow the steps below.

1. Fit the side of the secondary battery opposite the connector into the adaptor.
2. Lay the battery into the adaptor. The latch should close automatically to secure the secondary battery.
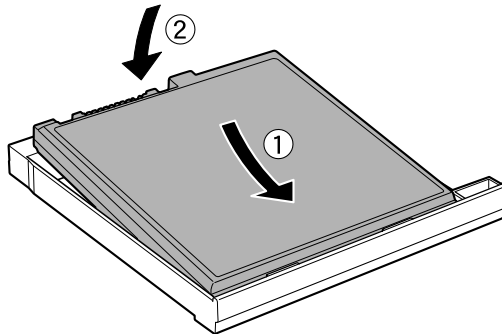
Installing the secondary battery pack in the adaptor

Removing

To remove the secondary battery from the adaptor, follow the steps below.

1. Slide the latch in the direction of the arrow shown below.
2. Push the secondary battery up from the bottom and lift it out.
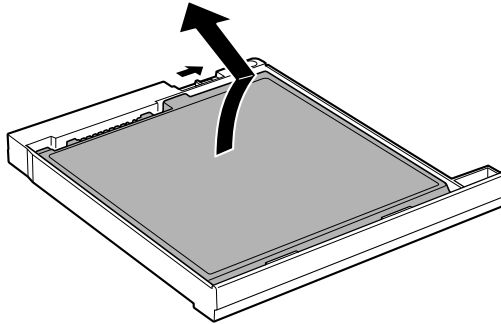
Removing the battery pack from the adaptor

Additional AC adaptor

If you frequently carry the computer to different sites such as your home and office, having an AC adaptor at each location reduces the weight and bulk of your load.

Battery charger

The battery charger provides a convenient way to charge main battery packs and secondary battery packs without requiring the use of your computer. The battery charger has two sockets: one for a main battery and one for a secondary battery. The batteries are charged one after the other in succession.

Advanced Port Replicator

In addition to the ports available on the computer, the Advanced Port Replicator provides DVI (digital video interface), audio line-out jack, line-in jack and separate ports for PS/2 mouse and PS/2 keyboard. The Advanced Port Replicator connects directly to the docking interface on the bottom of the computer. The AC adaptor connects the Port Replicator to a power source.

The computer must be configured properly before connecting to a LAN. Logging onto a LAN using the computer's default settings could cause a malfunction in LAN operation. Check with your LAN administrator regarding set-up procedures.

You must connect the AC adaptor before you connect to the LAN..

The following ports and accessories are available on the Advanced Port Replicator.

■ RJ45 LAN jack
■ RJ11 Modem jack
■ External monitor port
■ Parallel port
■ Serial port
■ PS/2 mouse port
■ PS/2 keyboard port
■ DC IN socket
■ Security lock slot
■ Audio line-in, line-out jacks
■ Universal Serial Bus (two)
■ IEEE 1394 port
■ DVI port
   When you connect a TECRA 9000 computer to an optional Port Replicator 2001, the Digital Visual Interface (DVI) supports the following DVI-D type monitors:
   ■ EIZO FlexScan L371
   ■ EIZO FlexScan L461
   ■ EIZO FlexScan L675
   ■ SONY SDM-M61
   ■ ViewSonic PH77
   ■ IO Data LCD-DV15H
   ■ Toshiba F3C
   ■ NEC Multisync LCD 1525X

Do not connect a DVI port and the external monitor port at the same time. A shutter is installed to prevent dual connection.

i.LINK (IEEE1394)

i.LINK (IEEE1394) is used for high-speed data transfer for a range of compatible devices such as

■ Digital video cameras

■ Hard disk drives

■ MO drives

■ CD-RW drives

i.LINK uses a four-pin connector, which does not carry electric current. External devices will need their own power supply.

Precautions

■ Make a back-up of your data before transferring it to the computer. There is a possibility that the original data will be damaged. There is a particular risk when you transfer video that some frames will be lost. Toshiba assumes no liability for loss of such data.

■ Do not transfer data in areas where static electricity is easily generated or in areas subjected to electronic noise. Data can be destroyed.

■ If you are transferring data through an IEEE1394 hub, do not connect or disconnect other devices from the hub during data transfer. There is a likelihood that data will be damaged. Connect all devices to the hub before you turn on the computer's power.

Connecting

1. Make sure the connectors are properly aligned and plug the i.LINK (IEEE1394) cable into the computer.
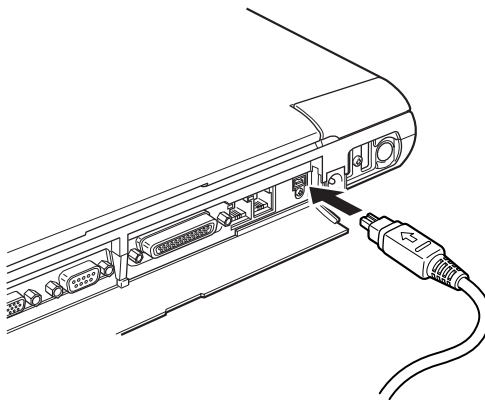
Connecting the i.LINK cable

2. Plug the other end of the cable into the device.

Note the following when you use i.LINK:

■ You may need to install drivers for your i.LINK devices.

■ Not all i.LINK devices have been tested, therefore, compatibility with all i.LINK devices cannot be guaranteed.

■ Use S100, S200 or S400 cables no longer than three meters.

■ Some devices might not support standby or automatic off functions.

■ Do not disconnect an i.LINK device while it is using an application or when the computer is automatically shutting it down to save power. Data might be destroyed.

Disconnecting

1. Click the **Unplug or Eject hardware** icon on the Task Bar.

2. Select i.LINK (IEEE1394).

3. When **You can disconnect your i.LINK device** appears, click OK.

4. Disconnect the cable from the computer then from the i.LINK device.

Refer also to the documentation that came with your i.LINK device.

Parallel printer

You can connect any standard Centronics-compatible parallel printer to your computer. All you need is an IBM PC parallel printer cable. Your dealer can supply one or you can purchase one at most computer stores.

The cable's connectors are designed so that it is impossible for you to connect them incorrectly. You can also connect a parallel printer to the optional Advanced Port Replicator. To connect a printer, follow these steps:

1. Turn off the computer.

2. Insert one end of the cable into the computer's parallel port.

3. Tighten the screws that fasten the cable connector to the computer's parallel port.

4. Insert the other end of the cable into the printer's parallel connector.

5. Fasten the connector to the printer with the clips on the parallel port.

6. Turn on the printer.

7. Turn on the computer.

8. Start the HW Setup program. Refer to Chapter 7, *HW Setup and Passwords*.

9. Select the **Parallel/Printer** tab from the **Toshiba Hardware Setup** window.

10. Set the mode to **ECP** and press **OK**.

11. Choose **Reboot** for the change to take effect.

External monitor

An external analogue monitor can be connected to the external monitor port on the computer or on the optional Advanced Port Replicator. The computer supports VGA and Super VGA video modes. To connect a monitor, follow the steps below.

The Standby feature can be used with an external monitor.

1. Turn the computer off.
2. Connect the monitor to the external monitor port.
3. Turn the monitor's power on.
4. Turn the computer on.

When you turn on the power, the computer automatically recognises the monitor and determines whether it is colour or monochrome.

You can use the HW Setup program to choose either **Auto-Selected** and **Simultaneous** displays. Refer to Chapter 7, *HW Setup and Passwords*, for details on settings.

If you have selected **Simultaneous** under the **Display** options of the HW Setup program, both the external monitor and the internal LCD will be active when you turn on the computer. If **Auto-Selected** is chosen, only the external monitor will be active.

To change the display settings, press **Fn + F5**. If you disconnect the monitor before you turn the computer off, be sure to press **Fn + F5** to switch to the internal display. Refer to Chapter 5, *The Keyboard*, for details on using hotkeys to change the display setting.

Simultaneous *display will not work if the external monitor, or other device such as a projector, supports only VGA mode (640 x 480). This is because the computer operates in the higher resolution Super VGA (800 x 600) or XGA (1024 x 768). In this case, choose* **Auto-Selected** *in Hardware Setup or press* **Fn + F5** *to switch to the external display.*

Television

A television can be connected to the video out port on the computer. To connect a television, follow the steps below.

1. Turn the computer off.
2. Use a video cable (not supplied) to connect the television to the video out port.
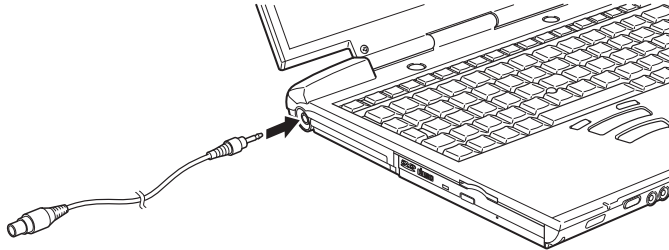
Connecting a television

3. Turn the television on.
4. Turn the computer on.

PS/2 mouse

Use the PS/2 mouse/keyboard port on the computer or the PS/2 mouse port on the optional Advanced Port Replicator to connect a PS/2 mouse.

Make sure the mouse has a cable with a 6-pin connector for the PS/2 mouse port. If the mouse's cable is not compatible, see your dealer for an adaptor cable.

How the computer treats the connection to a PS/2 mouse depends on the setting for **Pointing Devices** *in the HW Setup program. If* **Simultaneous** *is selected, you can operate both the AccuPoint II and the PS/2 mouse. If* **Auto Selected** *is chosen, the AccuPoint II is disabled if a PS/2 mouse is connected*

To connect a PS/2 mouse:

1. Turn the computer off.
2. Connect the PS/2 mouse to the PS/2 mouse/keyboard port on the computer or the mouse port on the optional Advanced Port Replicator, pressing gently to assure a firm connection.
3. Turn on the computer.

To disconnect the mouse, turn off the computer and pull out the mouse connector.

If you connect a PS/2 mouse to the computer while it is in Standby mode, you will not be able to use the mouse when you turn the computer on.

Consult your mouse manual for instructions on how to install necessary software.

PS/2 keyboard

Use the PS/2 mouse/keyboard port on the computer or the PS/2 keyboard port on the optional Advanced Port Replicator to connect a PS/2 keyboard. When an external keyboard is connected, you can use both the external keyboard and the computer's internal keyboard. To connect a PS/2 keyboard:

1. Turn the computer off.

2. Plug the PS/2 keyboard connector into the PS/2 mouse/keyboard port on the computer or the keyboard port on the optional Advanced Port Replicator, pressing gently to assure a firm connection.

3. Turn on the computer.

To disconnect the keyboard, turn off the computer and pull out the keyboard connector.

If you connect a PS/2 keyboard to the computer while it is in Standby mode, you will not be able to use the keyboard when you turn the computer on.

Security lock

Security locks enable you to anchor your computer, an optional Advanced Port Replicator to a desk or other heavy object to help prevent unauthorised removal of the computer, Advanced Port Replicator.

The computer has a security lock slot on the right side. Attach one end of a cable to a desk and the other end to the security lock slot.

1. Turn the computer so the right side faces you.

2. Align the holes for the security lock and attach the lock.
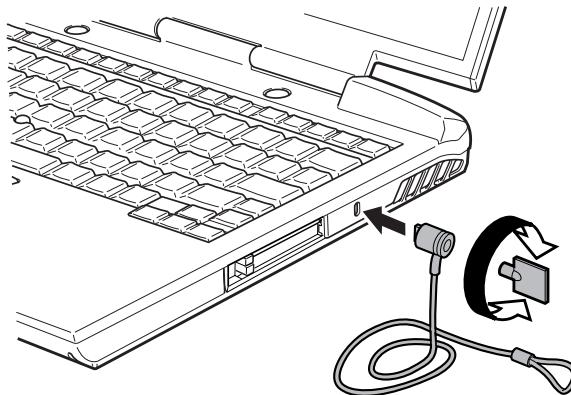
Security lock

Chapter 9

Troubleshooting

Toshiba designed the computer for durability. However, should problems occur, following the procedures in this chapter can help to determine the cause.

All readers should become familiar with this chapter. Knowing what might go wrong can help prevent problems from occurring.

Problem solving process

Resolving problems will be much easier if you observe the following guidelines:

■ Stop immediately when you recognise a problem exists. Further action may result in data loss or damage. You may destroy valuable problem-related information that can help solve the problem.

■ Observe what is happening. Write down what the system is doing and what actions you performed immediately before the problem occurred. If you have a printer attached, print a copy of the screen using **PrtSc**.

The questions and procedures offered in this chapter are meant as a guide, they are not definitive problem solving techniques. Many problems can be solved simply, but a few may require help from your dealer. If you find you need to consult your dealer or others, be prepared to describe the problem in as much detail as possible.

Preliminary checklist

Consider the simplest solution first. The items in this checklist are easy to fix and yet can cause what appears to be a serious problem.

■ Make sure you turn on all peripheral devices before you turn on the computer. This includes your printer and any other external device you are using.

■ Before you attach an external device, turn the computer off. When you turn the computer back on it recognises the new device.

■ Make sure all options are set properly in the setup program.

■ Check all cables. Are they correctly and firmly attached? Loose cables can cause signal errors.

■ Inspect all connecting cables for loose wires and all connectors for loose pins.

■ Check that your diskette or CD/DVD-ROM is correctly inserted and that the diskette's write protect tab is correctly set.

Make notes of your observations and keep them in a permanent error log. This will help you describe your problems to your dealer. If a problem recurs, the log will help you identify the problem faster.

Analysing the problem

Sometimes the system gives clues that can help you identify why it is malfunctioning. Keep the following questions in mind:

■ Which part of the system is not operating properly: keyboard, diskette drives, hard disk drive, printer, display. Each device produces different symptoms.

■ Is the operating system configuration set properly? Check the configuration options.

■ What appears on the display screen? Does it display any messages or random characters? Print a copy of the screen if you have a printer attached. Look up the messages in the software and operating system documentation. Check that all connecting cables are correctly and firmly attached. Loose cables can cause erroneous or intermittent signals.

■ Do any icons light? Which ones? What colour are they? Do they stay on or blink? Write down what you see.

■ Do you hear any beeps? How many? Are they long or short? Are they high pitched or low? Is the computer making any unusual noises? Write down what you hear.

Record your observations so you can describe them to your dealer.

Software

The problems may be caused by your software or diskette. If you cannot load a software package, the media (usually a diskette) may be damaged or the program might be corrupted. Try loading another copy of the software.

If an error message appears while you are using a software package, check the software documentation. These documents usually include a problem solving section or a summary of error messages.

Next, check any error messages in the OS documentation.

Hardware

If you cannot find a software problem, check your hardware. First run through the items in the preliminary checklist above. If you still cannot correct the problem, try to identify the source. The next section provides checklists for individual components and peripherals.

Hardware and system checklist

This section discusses problems caused by your computer's hardware or attached peripherals. Basic problems may occur in the following areas:

- System start-up
- Self test
- Power
- Password
- Hotkeys
- Keyboard
- Display
- Hard disk drive
- CD-ROM drive
- CD-R/RW drive
- DVD-ROM drive
- CD-RW/DVD drive
- Diskette drive
- Infrared port
- Printer
- Pointing device
- PC card
- SD card
- Monitor
- Sound system
- TV output signal
- USB
- Hibernation
- Memory Expansion
- Modem
- LAN
- Wireless LAN
- Bluetooth
- iLINK (IEEE1394)

System start-up

When the computer does not start properly, check the following items:

- Self Test
- Power Sources
- Power-on Password

Self test

When the computer starts up, the self test will be run automatically, and the following will be displayed:

In Touch with Tomorrow
TOSHIBA

This message remains on the screen for a few seconds.

If the self test is successful, the computer tries to load the operating system. Depending on how the Boot Priority is set in the HW Setup program, the computer tries to load first from drive A then from drive C, or first from drive C then from drive A.

If any of the following conditions are present, the self test failed:

■ The computer stops and does not proceed to display information or messages except the Toshiba logo.

■ Random characters appear on the screen, and the system does not function normally.

■ The screen displays an error message.

Turn off the computer and check all cable connections as well as PC card and memory module connections. If the test fails again, contact your dealer.

Power

When the computer is not plugged into an AC adaptor, the battery pack is the primary power source. However, your computer has a number of other power resources, including intelligent power supply and Real Time Clock battery. These resources are interrelated and any one could affect apparent power problems. This section provides check lists for the AC adaptor and the main battery. If you cannot resolve a problem after following them, the cause could lie with another power resource. In such case, contact your dealer.

A memory module must be installed in slot A to start up the system. It will not start if no memory is installed or if a module is installed in slot B only.

Power switch

If the Slim Select Bay lock is set to the unlock position you cannot turn on the computer. Refer to Chapter 4, *Operating Basics,* for more information.

Problem	Procedure
The computer does not turn on when you press the power switch	Make sure the **Slim Select Bay** lock is set to the lock position and try again to turn on the computer.
	If the computer still does not turn on, refer to the sections *Overheating power down*, AC power and Battery below.

Overheating power down

If the computer's internal temperature becomes too high, the computer will automatically enter Resume mode and shut down.

Problem	Procedure
Computer enters Resume mode and shuts down	Leave the computer off until its interior reaches room temperature.
	If the computer has reached room temperature and still does not start, or if it starts but shuts down quickly contact your dealer.
Computer shuts down and its DC IN indicator is flashing green	Indicates a problem with the heat dispersal system. Please contact your dealer.

AC power

If you have trouble turning on the computer with the AC adaptor connected, check the **DC IN** indicator. Refer to Chapter 6, *Power and Power-Up Modes,* for more information.

Problem	Procedure
AC adaptor doesn't power the computer (**DC IN** indicator should glow green)	Check the connections. Make sure the cord is firmly connected to the computer and a power outlet.
	Check the condition of the cord and terminals. If the cord is frayed or damaged, replace it. If the terminals are soiled, wipe them with cotton or a clean cloth.
	If the AC adaptor still does not power the computer, contact your dealer.

Battery

If you suspect a problem with the battery, check the **DC IN** indicator as well as the **Battery** indicator. For information on indicators and battery operation see Chapter 6, *Power and Power-Up Modes*.

Problem	Procedure
Battery doesn't power the computer	The battery may be discharged. Connect the AC adaptor to charge the battery.
	If the system fails to start up by the Alarm Power On, the battery may be low. Connect the AC adaptor to start up the system and charge the battery.
Battery doesn't charge when the AC adaptor is attached (Battery indicator should glow orange)	If the battery is completely discharged, it will not begin charging immediately. Wait a few minutes.
	If the battery still does not charge, make sure the outlet is supplying power. Test it by plugging in an appliance.
	Check if the battery is hot or cold to the touch. If the battery is too hot or too cold, it will not charge properly. Let it reach room temperature.
	Unplug the AC adaptor and remove the battery to make sure the terminals are clean. If necessary wipe them with a soft cloth dipped in alcohol.
	Connect the AC adaptor and replace the battery. Make sure it is securely seated.
	Check the **Battery** indicator. If it does not glow, let the computer charge the battery for at least 20 minutes. If the **Battery** indicator glows after 20 minutes, let the battery continue to charge at least another 20 minutes before turning on the computer.
	If the indicator still does not glow, the battery may be at the end of its operating life. Replace it.
	If you do not think the battery is at the end of its operating life, see your dealer.
Battery doesn't power the computer as long as expected	If you frequently recharge a partially charged battery, the battery might not charge to its full potential. Fully discharge the battery, then try to charge it again.
	Check the power consumption settings in Power Saver or **HW Setup**. Consider using a power saving mode.

Password

If you forgot your password, you can use your password service diskette to start the computer. If you did not make a password service diskette or if it doesn't work, see your dealer.

Problem	Procedure
Cannot enter password	Refer to the Passwords section in Chapter 7, *HW Setup* and *Passwords*.

Hot keys

Refer to Chapter 5, *The Keyboard,* for information on using hotkeys. Make sure the operation is correct and try a few hotkey combinations.

Problem	Procedure
Hotkeys do not work	If you are using an external keyboard, make sure the External Keyboard **Fn** key is set to the combination you are using.
	While Windows 98/2000 is starting, only **Fn + F5** works. Other hotkeys do not work.
	If you are still unable to use the hotkeys, consult your dealer.

Keyboard

Keyboard problems can be caused by your setup configuration. For more information refer to Chapter 5, *The Keyboard*, and Chapter 7, *HW Setup and Passwords*.

Problem	Procedure
Some letter keys produce numbers	Check that the numeric keypad overlay is not selected. Press **Fn + F10** and try typing again.
Output to screen is garbled	Make sure the software you are using is not remapping the keyboard. Remapping involves reassigning the meaning of each key. See your software's documentation.
	If you are still unable to use the keyboard, consult your dealer.

Display

Apparent display problems may be related to the computer's setup. Refer to Chapter 7, *HW Setup and Passwords*, for more information.

Problem	Procedure
Lines appear broken	Check if you are in DOS mode. In DOS, lines may appear broken, because of the LCD screen's higher resolution. The Windows display should appear normal.
No display on the LCD	Press hotkeys **Fn + F5** to change the display priority, to make sure it is not set for an external monitor.
The top or bottom part of the display on an external monitor is cut off when there is a simultaneous display on the LCD.	This problem can occur with a setting of SXGA+ (1400x1050). Open the Windows **Control Panel** and double-click the **Multi Display** icon. Open **Properties** and select **Dual Controller**. Try changing the resolution.
No display on the external monitor	This problem can occur with a setting of SXGA+ (1400x1050). Try changing the resolution. The monitor might not support the resolution setting. Try changing the resolution.
Markings appear on the internal LCD	Pressure on the outside of the computer can result in marks on the LCD from the AccuPoint II or keyboard. Wipe the LCD with a clean, dry cloth. If necessary, dampen the cloth in a neutral cleanser. Be careful not to let liquid run into the computer and let the LCD dry before closing it.
Display is dark	Open the **Toshiba Power Utility** icon in Windows Control Panel to adjust the brightness level.
Problems above remain unresolved or other problems occur	Refer to your software's documentation to determine if the software is causing the difficulty. Run the diagnostic test. Contact your dealer if the problems continue.

Hard disk drive

Refer to Chapter 7, *HW Setup and Passwords*, for more information.

Problem	Procedure
Computer does not boot from hard drive	Insert a system diskette and reboot.
	There may be a problem with your operating system files. Refer to your OS documentation.
Slow performance or disk errors	Your files may be fragmented. Run SCANDISK and defragmenter to check the condition of your files and disk. Refer to your OS documentation or online HELP for information on running SCANDISK and the defragmenter.
	As a last resort, reformat the hard disk. Then, reload the operating system and other files.
	If problems persist, contact your dealer.

CD-ROM drive

For more information, refer to Chapter 4, *Operating Basics.*

Problem	Procedure
You cannot access a CD in the drive	Make sure the drive's drawer is securely closed. Press gently until it clicks into place.
	Open the drawer and make sure the CD is properly seated. It should lie flat with the label facing up.
	A foreign object in the drawer could block laser light from reading the CD. Make sure there is no obstruction. Remove any foreign object.
	Check whether the CD is dirty. If necessary, wipe it with a clean cloth dipped in water or a neutral cleaner. See the CD care section in Chapter 4 for details on cleaning.
	Check your config.sys and autoexec.bat files to make sure they have the necessary drivers and execution lines.
Some CDs run correctly, but others do not	The software or hardware configuration may be causing a problem. Make sure the hardware configuration match's your software's needs. Check the CD's documentation.
	Check the type of CD you are using. The drive supports: Video CD, CD-EXTRA, Photo CD, CD-R (read only), CD-ROM, CD-Rewritable (read only), CD-ROM x A, CD-DA, CD-I, CD-Text
	If problems persist, contact your dealer.

CD-R/RW drive

For more information, refer to Chapter 4, *Operating Basics.*

Problem	Procedure
You cannot access a CD in the drive	Make sure the drive's drawer is securely closed. Press gently until it clicks into place.
	Open the drawer and make sure the CD is properly seated. It should lie flat with the label facing up.
	A foreign object in the drawer could block laser light from reading the CD. Make sure there is no obstruction. Remove any foreign object.
	Check whether the CD is dirty. If necessary, wipe it with a clean cloth dipped in water or a neutral cleaner. See the *CD care* section in Chapter 4 for details on cleaning.
	Check your config.sys and autoexec.bat files to make sure they have the necessary drivers and execution lines.
Some CDs run correctly, but others do not	The software or hardware configuration may be causing a problem. Make sure the hardware configuration match's your software's needs. Check the CD's documentation.
	Check the type of CD you are using. The drive supports:
	Video CD, CD-EXTRA, Photo CD, CD-R, CD-ROM, CD-Rewritable, CD-ROM x A, CD-DA, CD-I, CD-Text
	If problems persist, contact your dealer.

DVD-ROM drive

For more information, refer to Chapter 4, *Operating Basics.*

Problem	Procedure
You cannot access a DVD in the drive	Make sure the drive's drawer is securely closed. Press gently until it clicks into place.
	Open the drawer and make sure the DVD is properly seated. It should lie flat with the label facing up.
	A foreign object in the drawer could block laser light from reading the DVD. Make sure there in no obstruction. Remove any foreign object.
	Check whether the DVD is dirty. If it is, wipe it with a clean cloth dipped in water or a neutral cleaner. See the CD/DVD care section in Chapter 4, *Operating Basics*, for details on cleaning.
	Check the **Slim Select Bay** lock on the bottom of the computer. It should be in the lock position.
	Check **HW Setup**, if DVD-ROM is not displayed as the **Slim Select Bay** module, remove the DVD-ROM drive and reinsert it.
Some DVD/CDs run correctly, but others do not	The software or hardware configuration may be causing a problem. Make sure the hardware configuration matches your software's needs. Check the DVD/CD's documentation.
	Check the type of DVD/CD you are using. The drive supports:
	DVD-ROM: DVD-ROM, DVD-Video
	CD-ROM: Video CD, Photo CD, CD-EXTRA, CD-R (read only), CD-ROM, CD-Rewritable (read only), CD-ROM x A, CD-DA, CD-I, CD-Text
	Check the region code on the DVD. It must match that on the DVD drive. Region codes are listed in the DVD-ROM drive section in Chapter 2, *The Grand Tour*.
DVD does not play correctly in an optional Expansion Station	Some video discs might not play properly in a Expansion Station. Play the disc in the DVD-ROM drive installed in the computer.
	If problems persist, contact your dealer.

CD-RW/DVD-ROM drive

For more information, refer to Chapter 4, *Operating Basics.*

Problem	Procedure
You cannot access a CD or DVD in the drive	Make sure the drive's drawer is securely closed. Press gently until it clicks into place.
	Open the drawer and make sure the CD or DVD is properly seated. It should lie flat with the label facing up.
	A foreign object in the drawer could block laser light from reading the CD or DVD. Make sure there is no obstruction. Remove any foreign object.
	Check whether the DVD is dirty. If it is, wipe it with a clean cloth dipped in water or a neutral cleaner. See the *Disk care* section in Chapter 4, *Operating Basics*, for details on cleaning.
Some DVD/CDs run correctly, but others do not	The software or hardware configuration may be causing a problem. Make sure the hardware configuration matches your software's needs. Check the DVD/CD's documentation.
	Check the type of DVD/CD you are using. The drive supports:
	DVD-ROM: DVD-ROM, DVD-Video
	CD-ROM: Audio CD, Photo CD, ISO 9660, CD-EXTRA, CD-R, CD-Rewritable
	Check the region code on the DVD. It must match that on the DVD drive. Region codes are listed in the *DVD-ROM drive* section in Chapter 2, *The Grand Tour*.
	If problems persist, contact your dealer.

3 ½" diskette drive

For more information on the optional 3 ½" diskette drive, refer to Chapter 4, *Operating Basics.* Refer also the *USB* item in this chapter.

Problem	Procedure
Drive does not operate	There may be a faulty cable connection. Check the connection to the computer and to the drive.
Some programs run correctly, but others do not	The software or hardware configuration may be causing a problem. Make sure the hardware configuration matches your software's needs.
You cannot access the 3½" diskette	Try another diskette. If you can access this diskette, the original diskette (not the diskette drive) is probably causing the problem.
	If problems persist, contact your dealer.

Infrared port

Refer also to the documentation for your IrDA compatible device and related software.

Problem	Procedure
Infrared devices do not work as expected	Make sure there is no obstruction blocking communication between the computer and the target device.
	If problems persist, contact your dealer.

Printer

Refer also to the printer sections in Chapter 8, *Optional devices*, and to the troubleshooting and other relevant sections in your printer and software documentation.

Problem	Procedure
Printer does not turn on.	Check that the printer is connected to an electric outlet. Make sure the outlet is supplying power by plugging in an appliance.
Computer/printer do not communicate	Make sure the printer is turned on and is online (ready to use).
	Inspect the cable connecting the printer to the computer for damage. Make sure it is securely connected.
	A parallel printer connects to the parallel port and a serial printer to the RS-232C serial port. Make sure the ports are configured correctly.
	Make sure your software is configured to recognise the printer. Check your printer and software documentation.
Printer error	Check your printer documentation.
	If problems persist, contact your dealer.

Pointing device

If you are using a PS/2 or serial mouse, also refer to Chapter 9, *Optional devices,* and to your mouse documentation.

AccuPoint II

Problem	Procedure
On-screen pointer does not respond to AccuPoint II operation	If a PS/2 or serial mouse is connected, check the Hardware Setup or **HW Setup** program. The `Pointing Device` option should be set to `Simultaneous` to use both the AccuPoint II and an external mouse.
	If problems persist, contact your dealer.

PS/2 mouse

Problem	Procedure
On-screen pointer does not respond to PS/2 mouse operation	Check that the PS/2 mouse cable's 6-pin connector is firmly connected to the mouse/keyboard port.
	You may have connected the mouse after turning the computer on. Turn off the computer, make sure the mouse is firmly connected and turn the computer back on.
	Is your software configured to recognise the mouse? Check the software documentation.
	If problems persist, contact your dealer.

Serial mouse

Problem	Procedure
On-screen pointer does not respond to serial mouse operation	Check for a firm connection between the computer's serial port and the cable's 9-pin connector.
	Did you connect the mouse before turning on the computer?
	Is the **Serial port** option in Hardware Setup or **HW Setup** program set properly?
	Is your software configured to recognise the mouse? Check the software documentation.
	If problems persist, contact your dealer.

PC card

Refer also to Chapter 8, *Optional devices*.

Problem	Procedure
PC card error occurs	Reseat the PC card to make sure it is firmly connected.
	Make sure the connection between the external device and the card is firm.
	Check the card's documentation and the online manual for CardWorks.
	If problems persist, contact your dealer.

SD Card

Refer also to Chapter 8, *Optional Devices*.

Problem	Procedure
SD Card error occurs	Reseat the SD Card to make sure it is firmly connected.
	Check the type of card. The slot does not support MultiMedia Cards.
	Check the card's documentation.
	If problems persist, contact your dealer.

Monitor

Refer also to Chapter 8, *Optional Devices,* and to your monitor's documentation.

Problem	Procedure
Monitor does not turn on	Make sure that the external monitor's power switch is on. Confirm that the external monitor's power cable is plugged into a working power outlet.
No display	Try adjusting the contrast and brightness controls on the external monitor.
	Press hotkeys **Fn** + **F5** to change the display priority and make sure it is not set for the internal display.
Display error occurs	Check that the cable connecting the external monitor to the computer is attached firmly.
	Run the diagnostic test program.
	If problems persist, contact your dealer.

Sound system

Refer also to documentation for your audio devices.

Problem	Procedure
No sound is heard	Adjust the volume control dial.
	Check the software volume settings.
	Make sure the headphone connection is secure.
	Make sure the sound function is not set to Mute by the hotkeys.
Annoying sound is heard	You may be experiencing feedback. Refer to Using the microphone in Chapter 4, *Operating Basics.*
	If problems persist, contact your dealer.

TV output signal

Problem	Procedure
Display on TV is poor	Make sure the TV signal is correct for the connected TV set: NTSC (common in the US and Japan), or PAL (common in Europe).
No display	Try adjusting the contrast and brightness controls on the external monitor.
	Press hotkeys **Fn** + **F5** to change the display. Refer to Chapter 5, *Keyboard*.
	If problems persist, contact your dealer.

If you turn the computer off in Standby mode *while the display is on TV, the computer will select either the internal LCD or an external computer CRT as the display device.*

USB

Refer also to your USB device's documentation.

Problem	Procedure
USB device does not work	Check for a firm cable connection between the USB ports on the computer and the USB device.
	Make sure the USB device drivers are properly installed. Refer to your Windows documentation for information on checking the drivers.
	If you are using an operating system that does not support USB, you can still use **USB devices**. If these devices do not work, make sure the USB Legacy Emulation item in **HW Setup** is set to **Enabled**.
	USB devices must be connected, before you boot the computer.
	If problems persist, contact your dealer.

Hibernation

Refer also to Chapter 7, *HW Setup and Passwords*.

Problem	Procedure
Hibernation does not work	Are you using a compression utility on C drive? Hibernation will not work with a compression utility.
	Hibernation will not work if the Windows 98 Drive Converter converts the file allocation table to FAT32.
	If problems persist, contact your dealer.

Memory expansion

Refer also to Chapter 8, *Optional Devices*, for information on installing memory modules.

Problem	Procedure
Beep sounds, and computer displays **Please remove the incompatible memory module in Slot X**. (X represents A or B.)	Make sure the memory module installed in the expansion slot is appropriate. Modules with parts numbers PA3085U-1M12, PA3086U-1M25, PA3108U-1M51 can be installed. If another module has been installed, or if there is no memory module in slot A, follow the steps below.
	1. Turn off the power.
	2. Disconnect the AC adaptor and all peripheral devices.
	3. Remove the battery.
	4. Remove the memory module.
	5. Replace the battery and/or connect the AC adaptor.
	6. Turn on the power.
	If problems persist, contact your dealer.

Modem

Refer also to Appendix H.

Problem	Procedure
You can hear a dial tone but can't make a call	If the call is going through a PBX machine, make sure the communication application's tone dial detection feature is disabled.
	You can also use the ATX command.
You place a call, but a connection can't be made After making a call you can't hear a ring	Make sure the settings are correct in your communications application.
	Make sure the tone or pulse selection in your communications application is set correctly.
	You can also use the ATD command.
Communication is cut off unexpectedly	The computer will automatically cut off communication when connection with the carrier is not successful for a set time interval. Try lengthening this time interval.

Problem	Procedure
A **CONNECT** display is quickly replaced by **NO CARRIER**	Check the error control setting in your communications application. You can also use the AT\N command. Refer to Appendix C, *AT Commands*.
Character display becomes garbled during a communication	In data transmission, make sure the parity bit and stop bit settings correspond with those of the remote computer. Check the flow control and communication protocol.
You receive an incoming call, but the modem isn't answering	Check the rings before auto answer setting in your communications application. You can also use the ATS command. If problems persist, contact your dealer.

LAN

If the following procedures do not restore LAN access, consult your LAN administrator.

Problem	Procedure
Cannot access LAN	Check for a firm cable connection between the computer's LAN jack and the LAN HUB. If problems persist, contact your LAN administrator or dealer.

Wireless LAN

If the following procedures do not restore LAN access, consult your LAN administrator. For more information on wireless communication, refer to Chapter 4, *Operating Basics.*

Problem	Procedure
Cannot access wireless LAN	Make sure the computer's wireless communication switch is set to on. If problems persist, contact your LAN administrator or dealer.

Bluetooth

For more information on wireless communication, refer to Chapter 4, *Operating Basics.*

Problem	Procedure
Cannot access Bluetooth device	Make sure the computer's wireless communication switch is set to on.
	Make sure the Bluetooth Manager is running and the power to the Bluetooth device is turned on.
	Make sure a Toshiba Bluetooth PC card or similar device is not enabled. The built-in Bluetooth cannot run simultaneously with such devices.
	If problems persist, contact your dealer.

i.LINK (IEEE1394)

Problem	Procedure
i.LINK device does not function	Make sure the cable is securely connected to the computer and to the device.
	Make sure the device's power is turned on.
	Reinstall the drivers. Open the Windows Control Panel and double-click the **Add New Hardware** icon. Follow the on-screen directions.
	Restart Windows.
	If problems persist, contact your dealer.

If you need further assistance

If you require any additional help using your computer or if you are having problems operating the computer, you may need to contact Toshiba for additional technical assistance.

Before you call

Some problems you experience may be related to software or the operating system, it is important to investigate other sources of assistance first. Before contacting Toshiba, try the following:

■ Review troubleshooting sections in the documentation for software and peripheral devices.

■ If a problem occurs when you are running software applications, consult the software documentation for troubleshooting suggestions. Call the software company's technical support for assistance.

■ Consult the dealer you purchased your computer and/or software from. They are your best sources for current information and support.

Where to write

If you are still unable to solve the problem and suspect that it is hardware related, write to Toshiba at the nearest location listed in Appendix C.

Appendix A

Specifications

This appendix summarises the computer's technical specifications.

Physical Dimensions

Size	310 (w) × 31.7/37 (h) × 269 (d) millimetres
Weight	2.1 kg with weight saver
	2.4 kg fully configured (with 14.1"XGA/128MB/20GB/DVD/modem/LAN-based)
	Weight varies for different configurations

Environmental Requirements

Conditions	Ambient temperature	Relative humidity
Operating	5°C (41°F) to 35°C (95°F)	20% to 80%
Non-operating	-20°C (-4°F) to 65°C (149°F)	10% to 90%
Thermal Gradient	20°C per hour maximum	
Wet-bulb temperature	26°C maximum	
Conditions	**Altitude (from sea level)**	
Operating	-60 to 3,000 meters	
Non-operating	-60 to 10,000 meters maximum	

Power Requirements

AC adaptor	75 Watt
	100 – 240 volts AC
	50 or 60 hertz (cycles per second)
Computer	15 VDC
	5.0 amperes

Appendix B

AC Power Cord and Connectors

The power cord's AC input plug must be compatible with the various international AC power outlets and the cord must meet the standards for the country in which it is used. All cords must meet the following specifications:

Length:	Minimum 2 metres (6.5 ft.)
Wire size:	Minimum 0.75 mm^2
Current rating:	Minimum 2.5 Amperes
Voltage rating:	125 or 250 VAC (depending on country's power standards)

Certification agencies

U.S. and Canada:	UL listed and CSA certified No. 18 AWG, Type SVT or SPT-2 two conductor
Australia:	AS

Europe:

Austria:	OVE
Belgium:	CEBEC
Denmark:	DEMKO
Finland:	FIMKO
France:	UTE
Germany:	VDE

Italy:	IMQ
The Netherlands:	KEMA
Norway:	NEMKO
Sweden:	SEMKO
Switzerland:	SEV
United Kingdom:	BSI
Japan:	DENANHO

In Europe, power cords must be VDE type, H05VVH2-F and two conductor.

For the United States and Canada, plug configuration must be a 2-15P (250 V) or 1-15P (125 V) as designated in the U.S. National Electrical code handbook and the Canadian Electrical Code Part II.
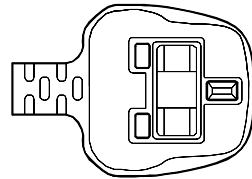
The following illustrations show the plug shapes for the U.S.A. and Canada, the United Kingdom, Australia and Europe.
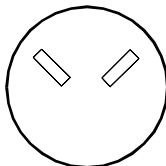

USA and Canada
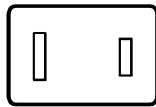
UL approved
CSA approved

United Kingdom
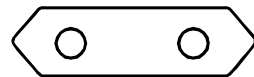
BS approved

Australia

AS approved

Europe

Approved by the
appropriate agency

Appendix C

The Toshiba International Warranty

The Toshiba International Warranty is a service policy on the parts and repair on your Toshiba portable personal computer which is automatically available to purchasers of the computer.

The cover is assured in major industrial countries of the world. It means that wherever you take your Toshiba mobile PC in this area, you will never be left without help should any problems arise.

What the warranty covers

The Warranty covers the computer in the standard version, including the AC adaptor. Batteries, modems, memory expansion kits and other Toshiba branded options, as well as third party expansion boards are NOT covered by this warranty. For information concerning warranties for these products, please consult your dealer.

If you would like to use the international warranty, please register with Toshiba. You will then receive a warranty sticker to be placed on your computer. In case no registration card for the international warranty was bundled with your computer, please contact the nearest Toshiba representation for registration.

On the following pages is a list of the Toshiba companies who can be contacted if a claim on the warranty needs to be made.

If users need further addresses in eastern Europe or outside Europe, these are available from the national or European companies.

Toshiba's Worldwide Computer Representatives

Australia	Toshiba (Australia) Pty. Limited 84-92 Talavera Road, North Ryde NSW 2113	Tel: +61-2-9887-3322 Fax: +61-2-9888-3664 http://www.isd.toshiba.com.au
Austria	Toshiba Europe GmbH Handelskai 388 1020 Wien	Tel: +43-1-72031000 Fax: +43-1-72031002 http://www.toshiba.at
Belgium	Toshiba Information Systems (Belgium) SANV Excelsiorlaan 40, B-1930 Zaventem	Tel: +32-2-715-8700 Fax: +32-2-725-3030 http://www.toshiba.be
Bulgaria	IMPEX Sofia Ltd. 12, Anton Naidenov Street, POBox 184, 1700 Sofia	Tel: +359-2-962-1219 Fax: +359-2-962-5062
Canada	Toshiba of Canada Ltd. 191 McNabb Street Markham, Ontario L3R-8H2	Tel: +1-800-663-0378 Fax: +1-905-470-3509 http://www.toshiba.ca
Czech Republic	CHG Service , s.r.o. Vídenská 102, 619 00 Brno	Tel: +420-5-4742-6581 Fax: +420-5-4742-6590 http:// www.chgservice.cz or www.toshiba-pc.cz
Denmark	Toshiba Digital Media Naverland 27, DK-2600 Glostrup	Tel: +45-3823-7600 Fax: +45-3823-7601 http://www.toshiba.dk
Egypt	El Araby Co. 76 El Gomhouria Street, El Kourba P.O. Box 1224 Cairo 11511	Tel: +202-588-9618 Fax: +202-591-8395
Estonia	CHS Estonia Parnu mnt. 142A 11317 Tallinn	Tel: +372-6504-960 Fax: +372-6504-916
Finland	Scribona TPC OY / Toshiba Digital Media Sinimäentie 14,P.O.Box 83, 02630 ESPOO	Tel: +358-9-5272555 Fax: +358-9-5272500 http://www.toshiba.se
France	Toshiba Systèmes (France) S.A. 7 Rue Ampère, 92804 Puteaux Cedex	Tel: +33-1-4728-2929 Fax: +33-1-4728-2247 http://www.toshiba.fr/pc
Germany	Toshiba Europe GmbH Leibnizstraße 2, D-93055 Regensburg	Tel: +49-(0)941-7807-888 Fax: +49-(0)941-7807-948 BBS: +49-(0)941-7807-999 http://www.toshiba-tro.de
Greece	Ideal Electronics S.A. 190 Syngrou Ave.; 176 71 Kalithea/Athens	Tel: +30-1-95625514 Fax: +30-1-9579094
Hungary	Technotrade Kft. Szerencs utca 202, 1147 Budapest	Tel: +36-1-410-5987 Fax: +36-1-4106691 http://www.technotrade.hu
Ireland	See 'United Kingdom'	

Israel	Mafil Technologies (3000) Ltd 4, Achuzat Bayit Str. Tel-Aviv	Tel: +972-3-511-0105 Fax: +972-3-517-6230 http://www.mafil.co.il
Italy	Progetto Elettronica 92 s.r.l. Via de Gasperi 88a, 20017 Mazzo di Rho	Tel: +39-02-9397-5551 Fax: +39-02-9397-5299 http://www.toshiba.it/pc
Japan	Toshiba Corporation, IOPC 1-1, Shibaura 1-Chome, Minato-KU Tokyo 105-01	Tel: +81-3-3457-5565 Fax: +81-3-5444-9262 http://www.toshiba.co.jp
Latvia	CHS Riga Kalnciema 12a LV1048 Riga	Tel: +371-27 60 20 52 Fax: + 371-7 61 38 87
Lebanon	Allied Computer Services S.A.L. (ALCS) Diab Bldg. Mkalles Rd., P.O. Box 311-316 Beirut	Tel: +961-1-682-000 Fax: +961-1-682-955
Lithuania	CHS Baltic Palemono 7A 3023 Kaunas	Tel: + 370 7 31 01 34 Fax: + 370 7 31 08 05
Luxemburg	See 'Netherlands'	
Malta	Tabone Computer Centre Limited 111 Old Railway Track HMR-16 St Venera	Tel: +356-49 36 04 Fax: +356-49 36 03 http://www.tabone.com.mt
Morocco	C.B.I MOROCCO Lottissement ATTAOUFIK Rue N° 1 Immeuble 29, Sidi Maar20190, Casablanca	Tel: +212 22 43 71 71 Fax: +212 22 43 71 87
Netherlands	Toshiba Information Systems Benelux B.V. Rivium Boulevard 41 2909 LK Capelle a/d IJssel	Tel: +31-10-2882-300 Fax: +31-10-2882-390 http://www.toshiba.nl
Norway	Scribona Norge A/S; Toshiba PC Service Stålfjæra 20, P.O.Box 51, Kalbakken 0901 OSLO	Tel: +47-22-897-000 Fax: +47-22-897-389 http://www.toshiba.se
Oman (Sultanate of Oman)	Suhail&Saud Bahwan (SSB) Sarco Building, Ground Floor No. 459, Way No. 310 Al Noor Street, Ruwi 113 Muscat	Tel: +968-790 191 117 Fax: +968-790 192 http://www.ssbcd.co.com
Poland	AC Serwis Sp. Z o. o. ul. Partyzantów 71, 43-316 Bielsko-Biala	Tel: +48 (0-33)8130-205 Fax: +48 (0-33)8130-209 http://www.acserwis.com.pl
Portugal	Quinta Grande Assisténcia Técnica Informática Lda. Av. Quinta Grande, 30 J; 2720-487 Alfragide	Tel: +351-21-472-1730 Fax: +351-21-472-1739 http://www.quintagrande.com
Romania	Scop Computers SRL 162 Barbu Vacarescu St, Sector 2 71424 Bucharest	Tel: +40-1-231-4602 Fax: +40-1-231-4606 http://www.scop.ro
Russia	AC SERSO Sovetskoi Armii st. 5 127018 Moscow	Tel: +7 - 095 281 5505 Fax: +7 - 095 284 5577 http://www.cepco.ru

Saudi Arabia	Arabian Business Machines Co. Dareen Center, Al Ahsa Road P.O. Box 2006 11451 Riyadh	Tel: +966-1 478 4909 Fax: +966-1 477 7803
Slovakia	HTC a.s. Dobrovicova 8; 81109 Bratislava	Tel: +421 2 59334 550 Fax: +421 2 59334 555 http://www.htc.sk
Slovenia	Inea d.o.o. Ljubljanska 80, 61230 Domzale	Tel: +386-61-718-000 Fax: +386-61-721672 http://www.inea.si
South Africa	Siltek Distribution Dynamics (SDD) 179 15th Road Randjespark, Halfway House 1685 Midrand	Tel: +27-11-314-5110 Fax: +27-11-314-5134 http://www.sdd.com
Spain	Toshiba Information Systems (España) S.A. Parque Empresarial San Fernando Edificio Europa, 1a Planta, Escalera A 28831 (Madrid) San Fernando de Henares	Tel: +34-91-6606-700 Fax: +34-91-6606-760 http://www.toshiba.es
Sweden	Scribona Toshiba PC AB Sundbybergsvägen 1, Box 1374 171 27 Solna	Tel: +46-200-212100 Fax: +46-8-734-4656 http://www.toshiba.se
Switzerland	Ozalid AG Herostrasse 7, 8048 Zürich	Tel: +41-1-439-7333 Fax: +41-1-439-7340 http://www.ozalid.ch
Turkey	Bekom Bilgisayar Elekronik Komunikasyon Buyukdere Cad. Lale Is Hani No. 62, 1 Mecidiyeköy, Istanbul	Tel: +90 212 275 87 97 Fax: +90 212 275 8740 http://toshibatr.com
United Arab Emirates	Al-Futtaim Electronics P.O. Box 5866, Bin Ham Building, Mezzanine Floor Adjacent to BurJuman Dubai	Tel: +971 4 351 5004 Fax: +971 4 351 4254 http://www.toshibauae.com
United Kingdom	Toshiba Information Systems (UK) Ltd. Toshiba Court, Weybridge Business Park Addlestone Road, Weybridge KT15 2UL	Tel: +44-1932-828828 Fax: +44-1932-822958 http://www.toshiba.co.uk
United States	Toshiba America Information Systems, Inc. 9740 Irvine Blvd., Irvine, CA 92713-9724	Tel: +1-949-583-3000 Fax: +1-949-583-3345 http://www.toshiba.com
Or for all countries not listed, please call the **Toshiba International Service Line**: or E-mail: toshibawarranty@unn.unisys.com		Tel: +352 460433

Toshiba addresses for the Internet/World Wide Web

Toshiba Europe
http://www.toshiba-europe.com

Toshiba Japan
http://www.toshiba.co.jp

Toshiba America
http://www.toshiba.com

Toshiba Canada
http://www.toshiba.ca

Toshiba Bulletin Board Service addresses

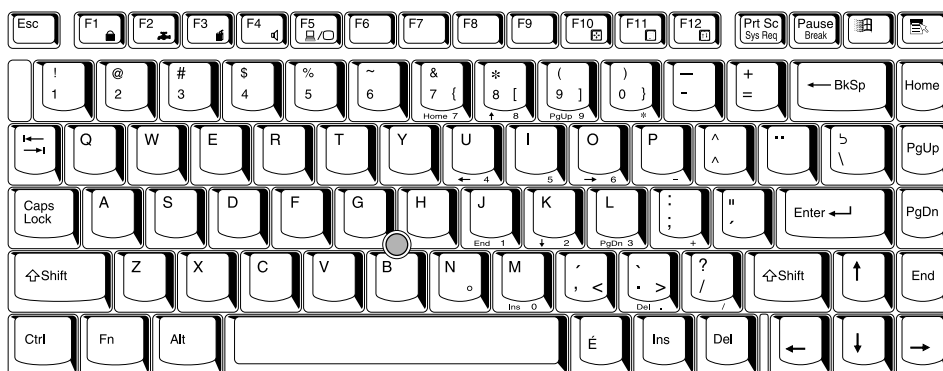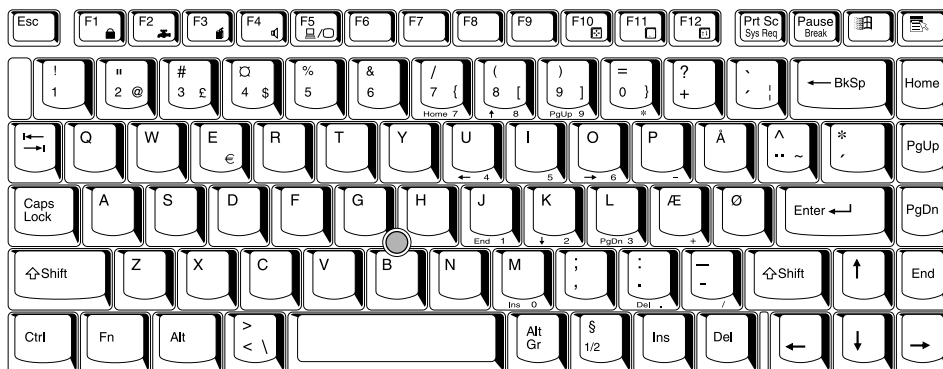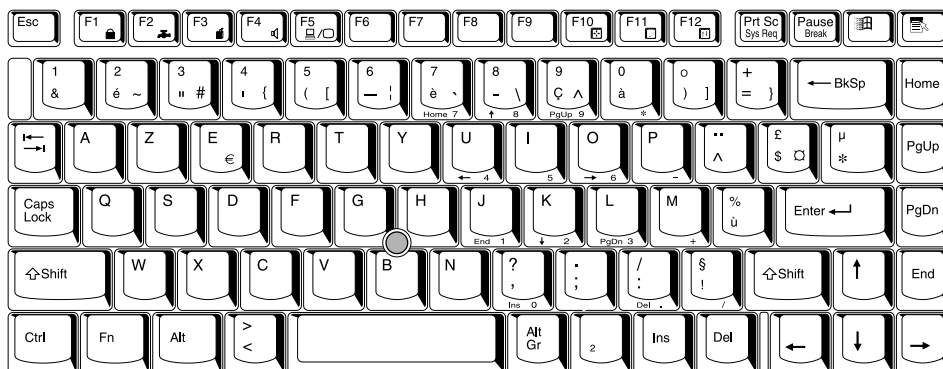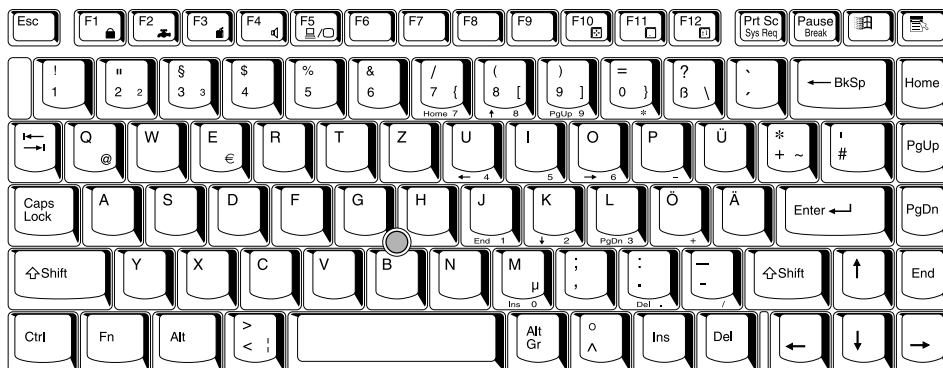|	
Analogue number:	+49 941-7807-999
ISDN1:	+49 941-7810500
ISDN2:	+49 941-7813131
Internet BBS:	www.toshiba-tro.de

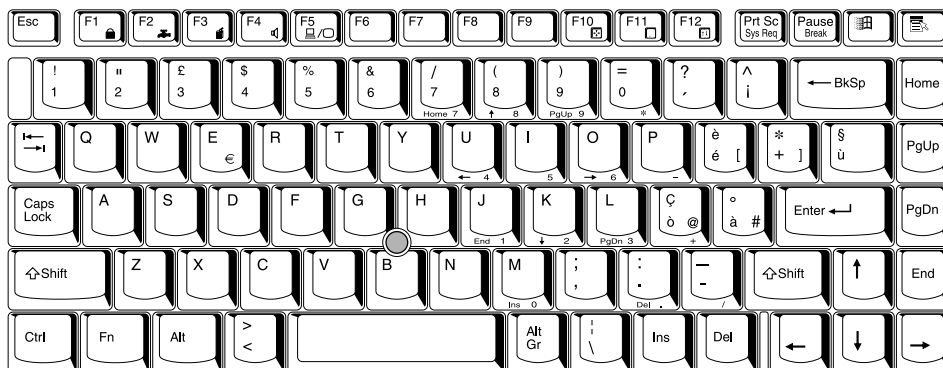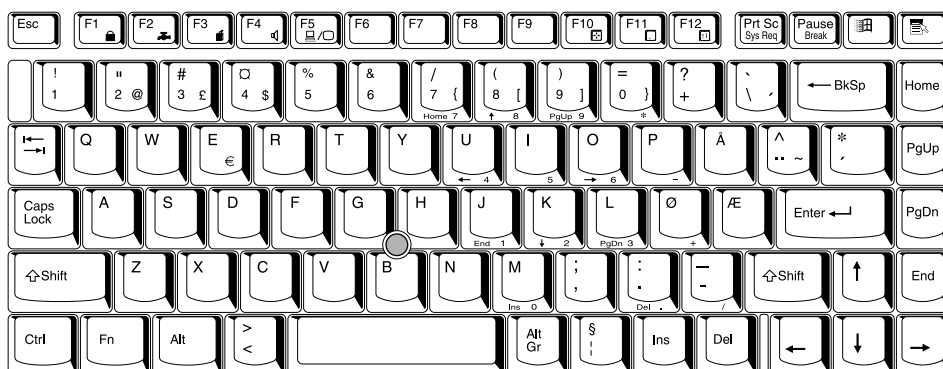# Appendix D

Keyboard Layouts

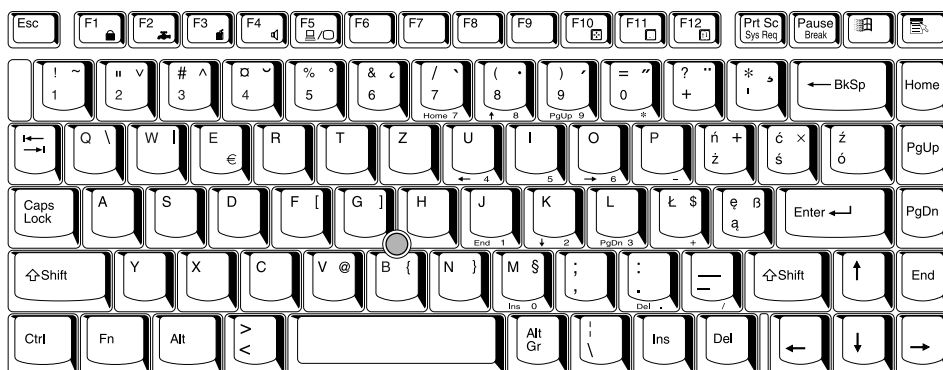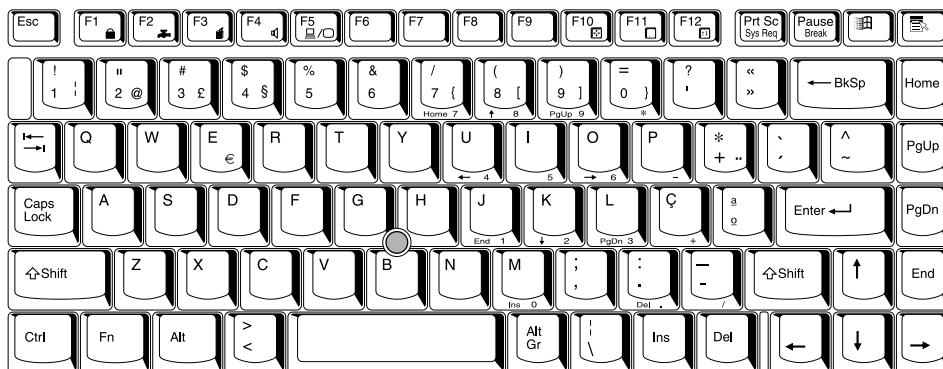## Belgian
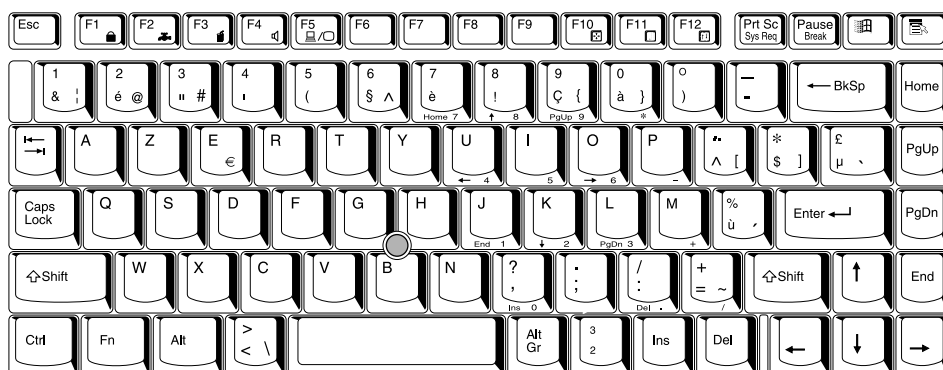
Canadian

Danish

French

German

Italian

Norwegian

Polish

Portuguese

Spanish
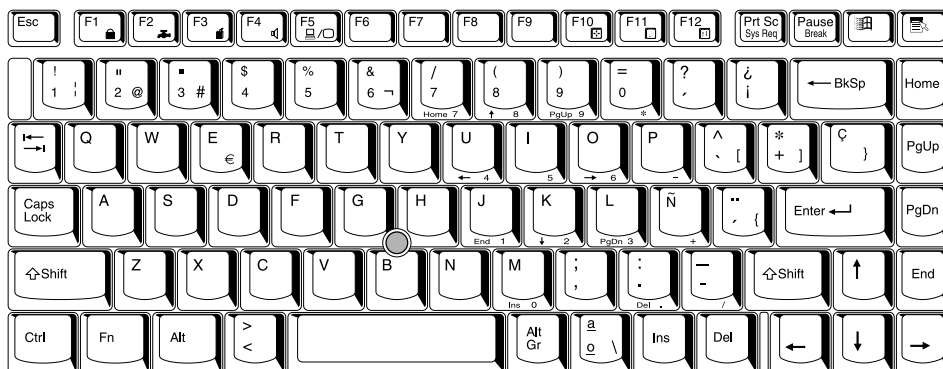
Swedish
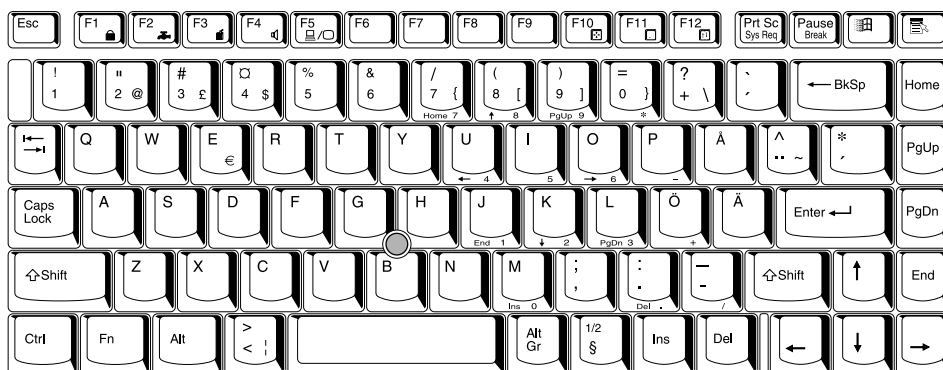
Swiss-German
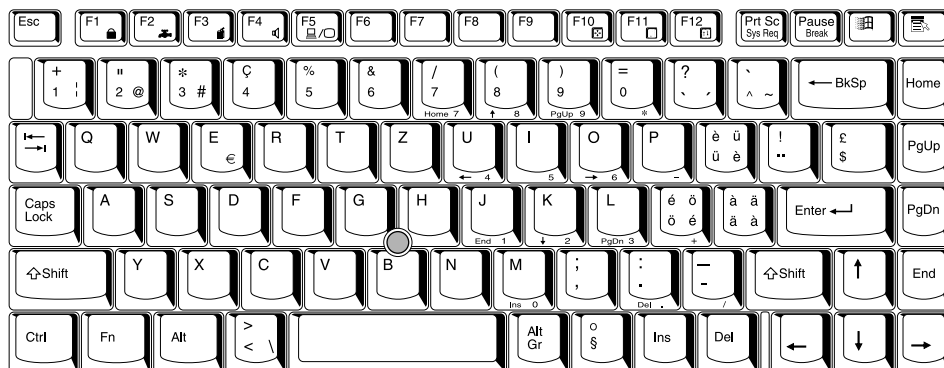
UK English

US English

Appendix E
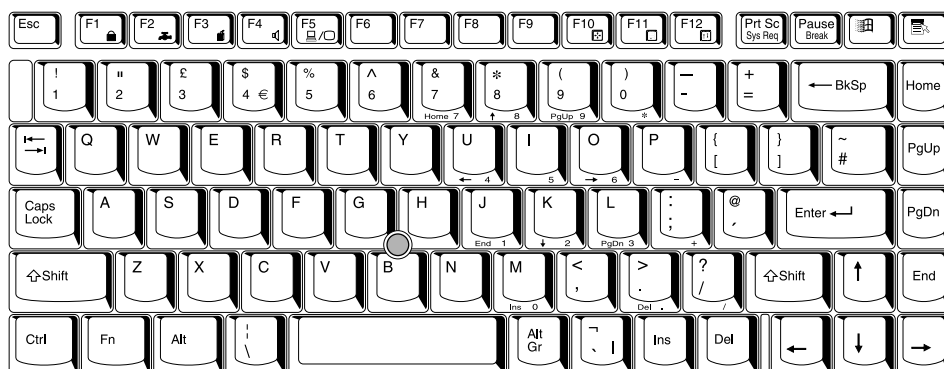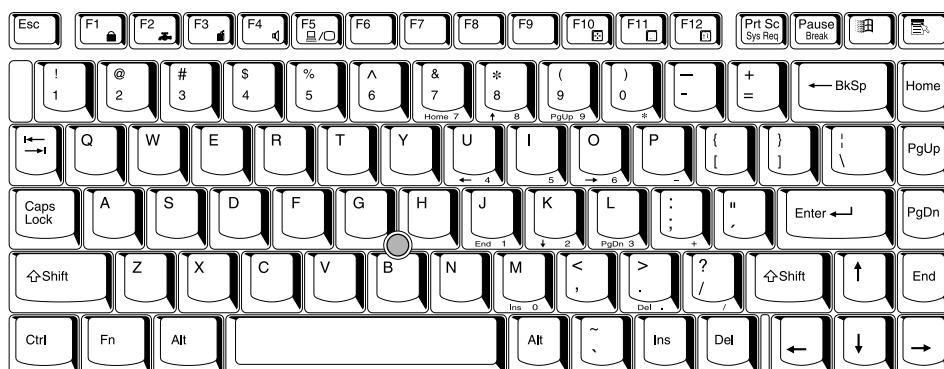
Display Controller and Modes

Display controller

The display controller interprets software commands into hardware commands that turn particular pels on or off.

The controller is an advanced Video Graphics Array (VGA) that provides Super VGA (SVGA) and Extended Graphics Array (XGA), Super Extended Graphics Array (SXGA), Super Extended Graphics Array plus (SXGA+), support for the internal LCD and external monitors.

The models are available in the sizes:

■ 14.1" XGA, 1024 horizontal x 768 vertical pixels

■ 14.1" SXGA+, 1400 horizontal x 1050 vertical pixels

Because of the LCD's increased resolution, lines may appear broken in DOS mode.

A high-resolution external monitor connected to the computer can display up to 1600 horizontal and 1200 vertical pixels at up to 64k colours or 1024 horizontal and 768 vertical pixels at up to 16M colours.

The display controller also controls the video mode, which uses industry standard rules to govern the screen resolution and the maximum number of colours that can be displayed on screen.

Software written for a given video mode will run on any computer that supports the mode.

The computer's display controller supports all VGA and SVGA modes, the most widely used industry standards.

Video modes

The computer supports the video modes defined in the following table . If your application offers a selection of mode numbers that do not match the numbers on the table, select a mode based on mode type, resolution, character matrix, number of colours and refresh rates. Also, consider that if your software supports both graphics and text modes, the screen display may appear to operate faster using a text mode.

Table 1. Video modes

Type	Resolution	Character matrix (pels)	LCD colours	CRT colours	Scanning frequency Ver./Hor.
VGA Text	40 x 25 Characters	8 x 8	16 of 256k	16 of 256k	70Hz/31.4kHz
VGA Text	80 x 25 Characters	8 x 8	16 of 256k	16 of 256k	70Hz/31.4kHz
VGA Text	40 x 25 Characters	8 x 14	16 of 256k	16 of 256k	70Hz/31.4kHz
VGA Text	80 x 25 Characters	8 x 14	16 of 256k	16 of 256k	70Hz/31.4kHz
VGA Text	40 x 25 Characters	8(9) x 16	16 of 256k	16 of 256k	70Hz/31.5kHz
VGA Text	80 x 25 Characters	8(9) x 16	16 of 256k	16 of 256k	70Hz/31.5kHz
VGA Grph	320 x 200 Pels	8 x 8	4 of 256k	4 of 256k	70Hz/31.4kHz
VGA Grph	640 x 200 Pels	8 x 8	2 of 256k	2 of 256k	70Hz/31.4kHz
VGA Text	80 x 25 Characters	8(9) x 14	Mono	Mono	70Hz/31.5kHz
VGA Text	80 x 25 Characters	8(9) x 16	Mono	Mono	70Hz/31.5kHz
VGA Grph	320 x 200 Pels	8 x 8	16 of 256k	16 of 256k	70Hz/31.4kHz
VGA Grph	640 x 200 Pels	8 x 8	16 of 256k	16 of 256k	70Hz/31.4kHz
VGA Grph	640 x 350 Pels	8 x 14	Mono	Mono	70Hz/31.4kHz
VGA Grph	640 x 350 Pels	8 x 14	16 of 256k	16 of 256k	70Hz/31.4kHz
VGA Grph	640 x 480 Pels	8 x 16	2 of 256k	2 of 256k	60Hz/31.4kHz
VGA Grph	640 x 480 Pels	8 x 16	16 of 256k	16 of 256k	60Hz/31.4kHz
VGA Grph	320 x 200 Pels	8 x 8	256 of 256k	256 of 256k	70Hz/31.4kHz

Table 1. Video modes

Type	Resolution	Character matrix (pels)	LCD colours	CRT colours	Scanning frequency Ver./Hor.
SVGA Grph	640 x 480 Pels	8 x 16	256 of 256k	256 of 256k	60/75/85Hz 31.5/37.5/43.3kHz
SVGA Grph	800 x 600 Pels	8 x 16	256 of 256k	256 of 256k	60/75/85Hz 37.9/46.9/53.7kHz
SVGA Grph	1024 x 768 Pels	8 x 16	256 of 256k	256 of 256k	60/75/85Hz 48.4/60.0/68.7kHz
SVGA Grph	1280 x 1024 Pels	8 x 16	256 of 256k[1]	256 of 256k	60/75/85Hz 64.0/80.0/91.1kHz
SVGA Grph	1400 x 1050 Pels	8 x 16	256 of 256k[3]	256 of 256k	60Hz 64.1kHz
SVGA Grph	1600 x 1200 Pels	8 x 16	256 of 256k[1,2]	256 of 256k	60/75Hz 75.0/93.8kHz
SVGA Grph	1920 x 1440 Pels	8 x 16	256 of 256k[1,2]	256 of 256k	60Hz 90kHz
SVGA Grph	640 x 480 Pels	8 x 16	64k of 64k	64k of 64k	60/75/85Hz 31.5/37.5/43.3kHz
SVGA Grph	800 x 600 Pels	8 x 16	64k of 64k	64k of 64k	60/75/85Hz 37.9/46.9/53.7kHz
SVGA Grph	1024 x 768 Pels	8 x 16	64k of 64k	64k of 64k	60/75/85Hz 48.4/60.0/68.7kHz
SVGA Grph	1280 x 1024 Pels	8 x 16	64k of 64k[1]	64k of 64k	60/75/85Hz 64.0/80.0/91.1kHz
SVGA Grph	1400 x 1050 Pels	8 x 16	64k of 64k[3]	64k of 64k	60Hz 64.1kHz
SVGA Grph	1600 x 1200 Pels	8 x 16	64k of 64k[1,2]	64k of 64k	60/75[4]Hz 75.0/93.8[4]kHz
SVGA Grph	1920 x 1440 Pels	8 x 16	64k of 64k[1,2]	64k of 64k	60 Hz 90 kHz
SVGA Grph	640 x 480 Pels	8 x 16	16M of 16M	16M of 16M	60/75/85Hz 31.5/37.5/43.3kHz
SVGA Grph	800 x 600 Pels	8 x 16	16M of 16M	16M of 16M	60/75/85Hz 37.9/46.9/53.7kHz
SVGA Grph	1024 x 768 Pels	8 x 16	16M of 16M	16M of 16M	60/75/85[4]Hz 48.4/60.0/68.7[4]kHz
SVGA Grph	1400 x 1050 Pels	8 x 16	16M of 16M	16M of 16M	60 Hz 64.1 kHz

1. Enters virtual mode when the LCD screen resolution is 1024 x 768 (panning).

2. Enters virtual mode when the LCD screen resolution is 1400 x 1050 (panning).

3. Supports only SXGA+ (1400 x 1050 LCD screen resolution).

4. Supports only XGA+ (1024 x 768 LCD screen resolution).

Appendix F

If your computer is stolen

Always take care of your computer and try to prevent it from being stolen. You are the owner of a valuable technical device, which may be highly attractive to thieves, so please do not leave it unattended in a public place. To further help protect against theft, security cables can be bought for use with your notebook when it is being used at home or in the office.

Make a note of your computer's machine type, model number, and serial number, and put it in a safe place. You will find this information on the underside of your notebook. Please also keep the receipt of the computer you purchased.

Should your computer be stolen, however, we'll help you try to find it. Before contacting Toshiba, please prepare the following information which is necessary to uniquely identify your computer:

■ In which country was your computer stolen?
■ What type of machine do you have?
■ What was the model number (PA number)?
■ What was the serial number (8 digits)?
■ When was it stolen, i.e. date?
■ What was the warranty seal number (if available)?
■ What is your address, phone, and fax number?

To register the theft, please follow these procedures:

■ Fill in the Toshiba Theft Registration form (or a copy of it) on the next page.
■ Attach a copy of your receipt showing where your computer was purchased.
■ Either fax or send the receipt and registration form to the address on the next page.

Your registration will be entered in a database, which is used to track Toshiba computers at our service points around Europe.

Toshiba Theft Registration

Send to: Toshiba Europe GmbH
              Technical Service and Support
              Leibnizstr. 2
              93055 Regensburg
              Germany

Fax number: +49 (0) 941 7807 925

Country stolen:	
Machine type: (e.g. Tecra 9000)	
Model number: (e.g. PA1218E YXT)	
Serial number: (e.g. 70123456E)	
Date stolen:	
Warranty seal: (e.g. 9813 123456 049)	

Owner's details

Name:	
Company:	
Street:	
Postal Code/City:	
Country:	
Phone:	
Fax:	

Appendix G

ASCII Character Codes

This appendix shows the American Standard Code for Information Interchange (ASCII) on the following pages. The characters in the **IBM** `char` column appear on your display when you type the corresponding ASCII code (as described in Chapter 5, *The Keyboard*). The characters that are printed, however, depend on the software you are using. For most software, the printed output for decimal codes 32 to 128 will match your screen display.

Dec code	Hex code	IBM char	Sort seq	Ctrl char
000	00		000	NUL
001	01	☺	1	SOH
002	02	☻	2	STX
003	03	♥	3	ETX
004	04	♦	4	EOT
005	05	♣	5	ENQ
006	06	♠	6	ACK
007	07	•	7	BEL
008	08	◘	8	BS
009	09	○	9	HT
010	0A	◙	10	LF
011	0B	♂	11	VT
012	0C	♀	12	FF
013	0D	♪	13	CR
014	0E	♫	14	SO
015	0F	☼	15	SI
016	10	▶	16	DLE
017	11	◀	17	DC1
018	12	↕	18	DC2
019	13	‼	19	DC3
020	14	¶	20	DC4
021	15	§	21	NAK
022	16	▬	22	SYN
023	17	↨	23	ETB
024	18	↑	24	CAN
025	19	↓	25	EM
026	1A	→	26	SUB
027	1B	←	27	ESC
028	1C	∟	28	FS
029	1D	↔	29	GS
030	1E	▲	30	RS
031	1F	▼	31	US

Dec code	Hex code	IBM char	Sort seq	Dec code	Hex code	IBM char	Sort seq
032	20	space	32	064	40	@	64
033	21	!	33	065	41	A	65
034	22	"	34	066	42	B	66
035	23	#	35	067	43	C	67
036	24	$	36	068	44	D	68
037	25	%	37	069	45	E	69
038	26	&	38	070	46	F	70
039	27	'	39	071	47	G	71
040	28	(	40	072	48	H	72
041	29	)	41	073	49	I	73
042	2A	*	42	074	4A	J	74
043	2B	+	43	075	4B	K	75
044	2C	,	44	076	4C	L	76
045	2D	-	45	077	4D	M	77
046	2E	.	46	078	4E	N	78
047	2F	/	47	079	4F	O	79
048	30	0	48	080	50	P	80
049	31	1	49	081	51	Q	81
050	32	2	50	082	52	R	82
051	33	3	51	083	53	S	83
052	34	4	52	084	54	T	84
053	35	5	53	085	55	U	85
054	36	6	54	086	56	V	86
055	37	7	55	087	57	W	87
056	38	8	56	088	58	X	88
057	39	9	57	089	59	Y	89
058	3A	:	58	090	5A	Z	90
059	3B	;	59	091	5B	[	91
060	3C	<	60	092	5C	\	92
061	3D	=	61	093	5D	]	93
062	3E	>	62	094	5E	^	94
063	3F	?	63	095	5F	_	95

Dec code	Hex code	IBM char	Sort seq	Dec code	Hex code	IBM char	Sort seq
096	60	'	96	128	80	Ç	67
097	61	a	97	129	81	ü	85
098	62	b	98	130	82	é	69
099	63	c	99	131	83	â	65
100	64	d	100	132	84	ä	65
101	65	e	101	133	85	à	65
102	66	f	102	134	86	å	65
103	67	g	103	135	87	ç	67
104	68	h	104	136	88	ê	69
105	69	i	105	137	89	ë	69
106	6A	j	106	138	8A	è	69
107	6B	k	107	139	8B	ï	73
108	6C	l	108	140	8C	î	73
109	6D	m	109	141	8D	ì	73
110	6E	n	110	142	8E	Ä	65
111	6F	o	111	143	8F	Å	65
112	70	p	112	144	90	É	69
113	71	q	113	145	91	æ	65
114	72	r	114	146	92	Æ	65
115	73	s	115	147	93	ô	79
116	74	t	116	148	94	ö	79
117	75	u	117	149	95	ò	79
118	76	v	118	150	96	û	85
119	77	w	119	151	97	ù	85
120	78	x	120	152	98	ÿ	89
121	79	y	121	153	99	Ö	79
122	7A	z	122	154	9A	Ü	85
123	7B	{	123	155	9B	¢	36
124	7C	¦	124	156	9C	£	36
125	7D	}	125	157	9D	¥	36
126	7E	~	126	158	9E	Pt	36
127	7F	⌂	127	159	9F	ƒ	36

Dec code	Hex code	IBM char	Sort seq	Dec code	Hex code	IBM char	Sort seq
160	A0	á	65	192	C0	└	
161	A1	í	73	193	C1	┴	
162	A2	ó	79	194	C2	┬	
163	A3	ú	85	195	C3	├	
164	A4	ñ	78	196	C4	─	
165	A5	Ñ	78	197	C5	┼	
166	A6	ā	166	198	C6	╞	
167	A7	ō	167	199	C7	╟	
168	A8	¿	63	200	C8	╚	
169	A9	⌐	169	201	C9	╔	
170	AA	¬	170	202	CA	╩	
171	AB	½	171	203	CB	╦	
172	AC	¼	172	204	CC	╠	
173	AD	¡	33	205	CD	═	
174	AE	«	34	206	CE	╬	
175	AF	»	34	207	CF	╧	
176	B0	░		208	D0	╨	
177	B1	▒		209	D1	╤	
178	B2	▓		210	D2	╥	
179	B3	│		211	D3	╙	
180	B4	┤		212	D4	╘	
181	B5	╡		213	D5	╒	
182	B6	╢		214	D6	╓	
183	B7	╖		215	D7	╫	
184	B8	╕		216	D8	╪	
185	B9	╣		217	D9	┘	
186	BA	║		218	DA	┌	
187	BB	╗		219	DB	█	
188	BC	╝		220	DC	▄	
189	BD	╜		221	DD	▌	
190	BE	╛		222	DE	▐	
191	BF	┐		223	DF	▀	

Dec code	Hex code	IBM char	Sort seq
224	E0	α	
225	E1	ß	83
226	E2	Γ	
227	E3	Π	
228	E4	Σ	
229	E5	σ	
230	E6	μ	
231	E7	Υ	
232	E8	Φ	
233	E9	Θ	
234	EA	Ω	
235	EB	δ	
236	EC	φ	
237	ED	ϕ	
238	EE	E	
239	EF	Λ	
240	F0	Ξ	
241	F1	$\pm$	
242	F2	$\geq$	
243	F3	$\leq$	
244	F4	$\lceil$	
245	F5	$\rfloor$	
246	F6	$\div$	
247	F7	$\approx$	
248	F8	$\circ$	
249	F9	∎	
250	FA	▬	
251	FB	$\sqrt{}$	
252	FC	η	
253	FD	^{2}	
254	FE	∎	
255	FF		

Appendix H

Modem

The Toshiba internal modem uses V.90 technology with the Windows 98 and Windows 2000 operating systems. The modem is capable of downstream speeds of 56Kbps (kilobits per second) when connected to an Internet service provider that supports V.90. As with any modem, the actual throughput (speed of data transfer) depends on analogue telephone line conditions, which can vary considerably. Therefore, many users will experience throughput in the range of 32-44Kbps under normal telephone line conditions. Upstream data flows at the V.34 rate.

V.90 rates can be achieved only when a V.90 capable end user modem is connected to a V.90 host modem capable of transmitting at these and higher speeds. The Toshiba Internal modem will select automatically V.34 if the remote modem lacks V.90 capability or if a combination of network and/or phone line conditions prevent V.90 connection.

V.90 mode

Function	Transmission speed
Data V.90	From 56K (maximum) to 28Kbps (minimum)
	Reception only

Table 1 Result codes for a V.90/56K connection

70	CONNECT32000EC*	Connection at 32000 bits/s
72	CONNECT36000EC*	Connection at 36000 bits/s
74	CONNECT40000EC*	Connection at 40000 bits/s
76	CONNECT44000EC*	Connection at 44000 bits/s
78	CONNECT48000EC*	Connection at 48000 bits/s
80	CONNECT52000EC*	Connection at 52000 bits/s
82	CONNECT56000EC*	Connection at 56000 bits/s
100	CONNECT28000EC*	Connection at 28000 bits/s
101	CONNECT29333EC*	Connection at 29333 bits/s
102	CONNECT30666EC*	Connection at 30666 bits/s
103	CONNECT33333EC*	Connection at 33333 bits/s
104	CONNECT34666EC*	Connection at 34666 bits/s
105	CONNECT37333EC*	Connection at 37333 bits/s
106	CONNECT38666EC*	Connection at 38666 bits/s
107	CONNECT41333EC*	Connection at 41333 bits/s
108	CONNECT42666EC*	Connection at 42666 bits/s
109	CONNECT45333EC*	Connection at 45333 bits/s
110	CONNECT46666EC*	Connection at 46666 bits/s
111	CONNECT49333EC*	Connection at 49333 bits/s
112	CONNECT50666EC*	Connection at 50666 bits/s
113	CONNECT53333EC*	Connection at 53333 bits/s
114	CONNECT54666EC*	Connection at 54666 bits/s

* EC stands for the Error Control method, which appears only when the extended result codes configuration option is enabled. EC is replaced by one of the following symbols, depending on the error control method used:

■ V42bis (V.42 error control and V.42bis data compression)

■ V42 (V.42 error control only)

■ NoEC (No error control protocol)

AT Command

-V90 =	* V.90 Dial Line Rate
	-V.90 sets the maximum V.90 downstream that the modem attempts to connect.
-V90 =0	V.90 disabled
-V90 =1	V.90 enabled : automatic speed selection – maximum modem speed (default)

In most cases, you will not need to type AT commands manually. However, there might be some occasions when you will need to do so.

Appendix I

AT Commands

In most cases, you will not need to type AT commands manually. However, there might be some occasions when you will need to do so.

This chapter describes AT commands for data mode. Fax and voice commands are taken care of by application software.

The format for entering AT commands is:

> **ATXn**

where **X** is the AT command, and **n** is the specific value for that command. After you type in the command press **Enter**.

Any command issued is acknowledged with a response in either text or numeric values known as result codes.

All commands and command-values accepted by the modem are described in this section; any entry other than those listed results in an error.

+++ Escape sequence

The escape sequence allows the modem to exit data mode and enter on-line command mode. While in on-line command mode, you can communicate directly to your modem using AT commands. Once you finish, you can return to data mode using the ATO command.

A pause, the length of which is set by Escape Guard Time (S12), must be completed after an escape sequence is entered, This pause prevents the modem from interpreting the escape sequence as data.

The value of the escape sequence character may be changed using register S2.

A/ Repeat last command

This command repeats the last command string entered. Do not precede this command with an AT prefix or conclude it by pressing **Enter**.

A Answer command

This command instructs the modem to go off-hook and answer an incoming call.

Bn   Communication standard setting

This command determines the communication standard CCITT or Bell.

B0   Selects CCITT V.22 mode when the modem is at 1200 bps.

B1   Selects Bell 212A when the modem is at 1200 bps (default).

B15 Selects V.21 when the modem is at 300 bps.

B16 Selects Bell 103J when the modem is at 300 bps (default).

Result Codes:

OK   n=0,1,15,16

ERROR Otherwise

Dn   Dial

This command instructs the modem to dial a telephone number. Enter **n** (the telephone number and any modifiers) after the ATD command.

Any digit or symbol (0-9, *, #, A, B, C, D) may be dialled as touch-tone digits. Characters such as spaces, hyphens, and parentheses do not count. They are ignored by the modem, but you may want to include them to make the number and modifiers easier to read.

The following may be used as phone number modifiers:

P   Pulse dialling.

T   Touch-tone dialling (default).

,   Pause during dialling. Pause for time specified in Register S8 before processing the next character in the dial string.

W   Wait for dial tone. Modem waits for a second dial tone before processing the dial string.

@   Wait for quiet answer. Wait for five seconds of silence after dialling the number. If silence is not detected, the modem sends a NO ANSWER result code back to the caller.

!   Hook flash. Causes the modem to go on-hook for 0.5 seconds and then return to off-hook.

;   Return to command mode. Causes the modem to return to command mode after dialling a number, without disconnecting the call.

S=n Dial a telephone number previously stored using the &Zn=X command (See &Zn=X command for more information). The range is 0-3.

En   Echo command

This command controls whether or not the characters entered from your computer keyboard are displayed on your monitor (echoed) while the modem is in command mode.

E0   Disables echo to the computer.

E1   Enables echo to the computer (default).

Result Codes:

OK   n=0,1

ERROR   Otherwise

Hn   Hook control

This command instructs the modem to go on-hook to disconnect a call, or off-hook to make the phone line busy.

H0   Modem goes on-hook (default).

H1   Modem goes off-hook.

Result Codes:

OK   n=0,1

ERROR   Otherwise

In   Request ID information

This command displays product information about the modem.

I0   Returns modem identity string and driver version number.

I3   Same as I0.

I9   Returns region ID in English.

Result Codes:

OK   n=0,3,9

ERROR   Otherwise

Ln   Monitor speaker volume

This command sets speaker volume to low, medium, or high.

L0   Low volume.

L1   Low volume. (Same as L0)

L2   Medium volume (default).

L3   High volume.

Result Codes:

OK   n=0,1,2,3

ERROR   Otherwise

Mn   Monitor speaker mode

This command turns the speaker on or off.

M0   The speaker is off.

M1   The speaker is on until the modem detects the carrier signal (default).

M2   The speaker is always on when modem is off-hook.

M3   Speaker is on until the carrier is detected, except when dialling.

Result Codes:

OK   n=0,1,2,3

ERROR   Otherwise

Nn   Modulation handshake

This command controls whether or not the local modem performs a negotiated handshake at connection time with the remote modem when the communication speed of the two modems is different.

N0   When originating or answering, this is for handshake only at the communication standard specified by S37 and the ATB command.

N1   When originating or answering, begin the handshake at the communication standard specified by S37 and the ATB command (default).

During handshake, a lower transmission speed may be selected.

Result Codes:

OK   n=0,1

ERROR   Otherwise

On   Return on-line to data mode

O0   Instructs the modem to exit on-line command mode and return to data mode (see AT escape sequence, +++).

O1   This command issues a retrain before returning to on-line data mode.

O3   This command issues a rate renegotiation before returning to on-line data mode.

Result Codes:

OK   n=0,1,3

ERROR   Otherwise

P   Select pulse dialling

This command configures the modem for pulse (non touch-tone) dialling. Dialled digits are pulsed until a T command or dial modifier is received. Tone dial is the default setting.

Qn   Result code control

Result codes are informational messages sent from the modem and displayed on your monitor. Basic result codes are OK, CONNECT, RING, NO CARRIER, and ERROR. The ATQ command allows the user to turn result codes on or off.

Q0   Enables modem to send result codes to the computer (default).

Q1   Disables modem from sending result codes to the computer.

Result Codes:

OK   n=0,1

ERROR   Otherwise

T   Select tone dialling

This command instructs the modem to send DTMF tones while dialling. Dialled digits are tone dialled until a P command or dial modifier is received. This is the default setting.

Vn   DCE response format

This command controls whether result codes (including call progress and negotiation progress messages) are displayed as words or their numeric equivalents.

V0   Displays result codes as digits.

V1   Displays result codes as text (default).

Result Codes:

OK   n=0,1

ERROR   Otherwise

Xn   Result code selection, call progress monitoring

This command selects which result codes will be used by the modem.

Command	Dial tone detect	Busy signal detect	Supported Result Code
X0	Disable	Disable	OK, CONNECT, RING, NO CARRIER, ERROR
X1	Disable	Disable	OK, RING, NO CARRIER, ERROR, CONNECT <RATE>
X2	Enable	Disable	OK, RING, NO CARRIER, ERROR, NODIALTONE, CONNECT <RATE>
X3	Disable	Enable	OK, RING, NO CARRIER, ERROR, BUSY, CONNECT <RATE>, BLACKLISTED
X4 (default)	Enable	Enable	OK, RING, NO CARRIER, ERROR, NODIALTONE, BUSY, CONNECT <RATE>, DELAYED, BLACKLISTED, REORDER, WARBLE, CALL WAITING DETECTED
X5	Enable	Enable	OK, RING, NO CARRIER, ERROR, NODIALTONE, BUSY, CONNECT <RATE>, RRING, NO BONGTONE, DELAYED, BLACKLISTED, REORDER, WARBLE, CALL WAITING DETECTED

Dial tone detect

Disabled: The modem dials a call regardless of whether it detects a dial tone.

Enabled: The modem dials only upon detection of a dial tone, and disconnects the call if the dial tone is not detected within 10 seconds.

Busy tone detect

Disabled: The modem ignores any busy tones it receives.

Enabled: The modem monitors for busy tones.

Result Codes:

OK   n=0,1,2,3,4,5

ERROR Otherwise

Zn   Recall stored profile

The modem performs a soft reset and restores (recalls) the configuration profile according to the parameter supplied. If no parameter is specified, zero is assumed. Either Z0 or Z1 restores the profile.

Result Codes:

OK   n=0,1

ERROR   Otherwise

&Cn Data Carrier Detect (DCD) control

Data Carrier Detect is a signal from the modem to the computer indicating that a carrier signal is being received from a remote modem. DCD normally turns off when the modem no longer detects the carrier signal.

&C0   The state of the carrier from the remote modem is ignored. DCD circuit is always on.

&C1   DCD turns on when the remote modem's carrier signal is detected, and off when the carrier signal is not detected (default).

Result Codes:

OK   n=0,1

ERROR   Otherwise

&Dn DTR control

This command interprets how the modem responds to the state of the DTR signal and changes to the DTR signal.

&D0   Ignore. The modem ignores the true status of DTR and treats it as always on. This should only be used if your communication software does not provide DTR to the modem

&D1   If the DTR signal is not detected while in on-line data mode, the modem enters command mode, issues an OK result code, and remains connected.

&D2   If the DTR signal is not detected while in on-line data mode, the modem disconnects (default).

&D3   Reset on the on-to-off DTR transition.

Result Codes:

OK   n=0,1,2,3

ERROR   Otherwise

&F   Load factory settings

This command loads the configuration stored and programmed at the factory. This operation replaces all of the command options and the S-register settings in the active configuration with factory values.

&F   Recall factory setting as active configuration.

&Gn V.22bis guard tone control

This command determines which guard tone, if any, to transmit while transmitting in the high band (answer mode). This command is only used in V.22 and V.22bis mode. This option is not used in North America and is for international use only.

&G0   Guard tone disabled (default).

&G1   Sets guard tone to 550 Hz.

&G2   Sets guard tone to 1800 Hz.

Result Codes:

OK   n=0,1,2

ERROR   Otherwise

&Kn Local flow control selection

&K0   Disables flow control.

&K3   Enables CTS/RTS flow control (default).

&K4   Enables XON/XOFF flow control.

Result Codes:

OK   n=0,3,4

ERROR   Otherwise

&Pn Select Pulse Dial Make/Break Ratio (WW)

&P0   Selects 39% - 61% make/break ratio at 10 pulses per second.

&P1   Selects 33% - 67% make/break ratio at 10 pulses per second.

&P2   Selects 39% - 67% make/break ratio at 20 pulses per second.

Result Codes:

OK   n=0,1, 2

ERROR   Otherwise

&Tn Self-test commands

These tests can help to isolate problems if you experience periodic data loss or random errors.

&T0   Abort. Stops any test in progress.

&T1   Local analogue loop. This test verifies modem operation, as well as the connection between the modem and computer. Any data entered at the local DTE is modulated, then demodulated, and returned to the local DTE. To work properly, the modem must be off-line.

Result Codes:

OK   n=0

CONNECT n=1

ERROR   Otherwise

&V Display Current Configuration

This command displays the current configuration of the modem. If nonvolatile memory is supported the stored pro-files are displayed as well.

&V   View profiles

&W Store current configuration

Saves the current (active) configuration (profile), including S-Registers.

The current configuration comprises a list of storable parameters illustrated in the **&V** command. These settings are restored to the active configuration upon receiving a **Zn** command or at power up. Refer to the **&V** command.

&W   Stores the current configuration.

&Zn=x Store telephone number

This command is used to store up to four dialling strings in the modem's nonvolatile memory for later dialling. The format for the command is &Zn="stored number" where n is the location 0-3 to which the number should be written. The dial string may contain up to 34 characters. The ATDS=n command dials using the string stored in location n.

Result codes:

OK   n=0, 1, 2, 3

ERROR   Otherwise

\Nn   Error control mode selection

This command determines the type of error control used by the modem when sending or receiving data.

\N0   Buffer mode. No error control.

\N1   Direct mode.

\N2   MNP or disconnect mode. The modem attempts to connect using MNP2-4 error control procedures. If this fails, the modem disconnects.

This is also known as MNP reliable mode.

\N3   V.42, MNP, or buffered (default).

The modem attempts to connect in V.42 error control mode. If this fails, it attempts to connect in MNP mode. If this fails, it connects in buffer mode and continues operation. This is also known as V.42/MNP auto reliable mode (same as **&Q5**).

\N4   V.42 or disconnect. The modem attempts to connect in V.42 error control mode. If this fails, the modem disconnects.

\N5   V.42. MNP or buffered (same as \N3).

\N7   V.42. MNP or buffered (same as \N3).

Result Codes:

OK   n=0,1,2,3,4,5,7

ERROR   Otherwise

\Qn   Local flow control selection

\Q0   Disable flow control.

\Q1   XON/XOFF software flow control.

\Q3   CTS/RTS to DTE (default).

Result Codes:

OK   n=0,1,3

ERROR   Otherwise

\Vn   Protocol result code

\V0   Disable protocol result code appended to DCE speed.

\V1   Enable protocol result code appended to DCE speed (default).

Result Codes:

OK   n=0,1

ERROR   Otherwise

%B   View numbers in blacklist

If blacklisting is in effect, this command displays the numbers for which the last call attempted in the past two hours failed. The **ERROR** result code appears in regions that do not require blacklisting.

%Cn Data compression control

This command determines the operation of V.42bis and MNP class 5 data compression. On-line changes do not take effect until a disconnect occurs first.

%C0   V.42bis/MNP 5 disabled. No data compression.

%C3   V.42bis/MNP 5 enabled. Data compression enabled (default).

Result Codes:

OK   n=0,3

ERROR   Otherwise

Appendix J

S-registers

S-registers contain the settings that determine how a number of functions of the internal modem operate. For example, how many times to let the telephone ring before the modem answers and how long to wait before it hangs up if a connection fails. You can also customise certain AT commands such as the escape sequence and command line termination.

The contents of the registers are changed automatically when you modify corresponding settings in your communication software. If you choose, however, you can display and edit the contents of the registers manually when the modem is in command mode. If the value is out of the acceptable range, then an error is generated.

This chapter describes the settings for each S-register.

S-register values

The format for displaying the value of an S-register is:

ATSn?

where **n** is the register number. After you type in the register press **Enter**.

The format for modifying the value of an S-register is:

ATSn=r

where **n** is the register number, and **r** is the new register value. After you type in the register and its new value press **Enter**.

Some registers vary from one country/region to another.

S0   Auto answer ring number

This register determines the number of rings the modem will count before automatically answering a call. Enter 0 (zero) if you do not want the modem to automatically answer at all. When disabled, the modem can only answer with an ATA command.

Range: 0-225

Default: 0

Units: rings

S1   Ring counter

This register is read only. The value of S1 is incremented with each ring. If no ring occurs over a six-second interval, this register is cleared.

Range: 0-255

Default: 0

Units: rings

S2   AT escape character (user defined)

This register determines the ASCII values used for an escape sequence. The default is the + character. The escape sequence allows the modem to exit data mode and enter command mode when on-line. Values greater than 127 disable the escape sequence.

Range: 0-255, ASCII decimal

Default: 43

Units: ASCII

S3   Command line termination character

This register determines the ASCII values as the carriage return character. This character is used to end command lines and result codes.

Range: 0-127, ASCII decimal

Default: 13 (carriage return)

Units: ASCII

S4   Response formatting character (user defined)

This register determines the ASCII value used as the line feed character. The modem uses a line feed character in command mode when it responds to the computer.

Range: 0-127, ASCII decimal

Default: 10 (line feed)

Units: ASCII

S5   Command line editing character (user defined)

This register sets the character recognised as a backspace and pertains to asynchronous only. The modem will not recognise the backspace character if it is set to a value that is greater than 32 ASCII. This character can be used to edit a command line. When the echo command is enabled, the modem echoes back to the local DTE the backspace character, an ASCII space character, and a second backspace character. This means a total of three characters are transmitted each time the modem processes the backspace character.

Range: 0-127, ASCII decimal

Default: 8 (backspace)

Units: ASCII

S6   Wait before dialling

This register sets the length of time, in seconds, that the modem must wait (pause) after going off-hook before dialling the first digit of the telephone number. The modem always pauses for a minimum of two seconds, even if the value of S6 is less that two seconds. The wait for dial tone call progress feature (W dial modifier in the dial string) will override the value in register S6. This operation, however, may be affected by some ATX options according to country/region restrictions. In some countries/regions, S6 will set dial tone detect time.

Range: 3-255

Default: 3

Units: seconds

S7   Connection completion time-out

This register sets the time, in seconds, that the modem must wait before hanging up because carrier is not detected. The timer is started when the modem finishes dialling (originate), or goes off-hook (answer). In originate mode, the timer is reset upon detection of an answer tone if allowed by county restriction. The timer also specifies the wait for silence time for the @ dial modifier in seconds. S7 is not associated with the W dial modifier.

Range: 1-255

Default: 50

Units: seconds

S8   Comma pause time

This register sets the time, in seconds, that the modem must pause when it encounters a comma (,) in the dial command string. In some countries/regions, S8 will set both wait before dialling and comma pause time.

Range: 0-255

Default: 2

Units: seconds

S11 DTMF dialling speed

This register determines the dialling speed which is prefixed for each country/region.

Range: 50-255

Default: 95

Units: 0.001 seconds

S12 Escape guard time

This register sets the value (in 20 millisecond increments) for the required pause after the escape sequence.

Range: 0-255

Default: 50

Units: 0.02 seconds

S37 Dial line rate

S37 = 0 (default)	maximum modem speed
S37 = 1	reserved
S37 = 2	1200/75 bps
S37 = 3	300 bps
S37 = 4	reserved
S37 = 5	1200 bps
S37 = 6	2400 bps
S37 = 7	4800 bps
S37 = 8	7200 bps
S37 = 9	9600 bps
S37 = 10	12000 bps
S37 = 11	14400 bps
S37 = 12	16800 bps
S37 = 13	19200 bps
S37 = 14	21600 bps
S37 = 15	24000 bps
S37 = 16	26400 bps
S37 = 17	28800 bps
S37 = 18	31200 bps
S37 = 19	33600 bps

AT command set result codes

The following table shows the result codes.

The result code summary

Result Code	Numeric	Description
OK	0	Command executed
CONNECT	1	Modem connected to line
RING	2	A ring signal has been detected
NO CARRIER	3	Modem lost carrier signal, or does not detect carrier signal, or does not detect answer tone
ERROR	4	Invalid command
CONNECT 1200 EC*1	5	Connection at 1200 bps
NO DIAL TONE	6	No dial tone detected
BUSY	7	Busy signal detected
NO ANSWER	8	No quiet answer
CONNECT 2400 EC[*1]	10	Connection at 2400 bps
CONNECT 4800 EC[*1]	11	Connection at 4800 bps
CONNECT 9600 EC[*1]	12	Connection at 9600 bps
CONNECT 14400 EC[*1]	13	Connection at 14400 bps
CONNECT 19200 EC[*1]	14	Connection at 19200 bps
CONNECT 7200 EC[*1]	24	Connection at 7200 bps
CONNECT 12000 EC[*1]	25	Connection at 12000 bps
CONNECT 16800 EC[*1]	86	Connection at 16800 bps
CONNECT 300 EC[*1]	40	Connection at 300 bps
CONNECT 21600 EC[*1]	55	Connection at 21600 bps
CONNECT 24000 EC[*1]	56	Connection at 24000 bps
CONNECT 26400 EC[*1]	57	Connection at 26400 bps
CONNECT 28800 EC[*1]	58	Connection at 28800 bps
CONNECT 31200 EC[*1]	59	Connection at 31200 bps
CONNECT 33600 EC[*1]	60	Connection at 33600 bps
DELAYED[*2]	88	Delay is in effect for the dialled number
BLACKLISTED[*2]	89	Dialled number is blacklisted
BLACKLIST FULL[*2]	90	Blacklist is full

*1: *EC only appears when the Extended Result Codes configuration option is enabled. EC is replaced by one of the following symbols, depending upon the error control method used:*

V.42bis - V.42 error control and V.42bis data compression.

V.42 - V.42 error control only.

MNP 5 - MNP class 4 error control and MNP class 5 data compression.

MNP 4 - MNP class 4 error control only.

NoEC - No error control protocol.

*2: *In some countries/regions, these result codes may not appear.*

Appendix K

Wireless LAN

This document is intended to help you get your Wireless LAN network up and running, with a minimum of parameters.

About Toshiba Wireless solution

The Wireless LAN card Kit enables you to:

■ Connect your computer to a peer-to-peer workgroup of Wireless computing devices.

■ Connect your computer to a Local Area Network (LAN) Infrastructure that includes Wireless LAN Access Points, or other IEEE802.11 compliant LAN systems.

■ Expand the capabilities of your Wireless LAN Access Points, to support Wireless devices that have been equipped with Wireless LAN card.

The internal Wireless LAN card can't be used with the Toshiba Wireless LAN PC card.

Peer-to-peer workgroup

The peer-to-peer workgroup configuration enables you to quickly set up a small Wireless workgroup, where the workgroup participants can exchange files using features such as *Files and Printer Sharing* as supported by Microsoft Networking.
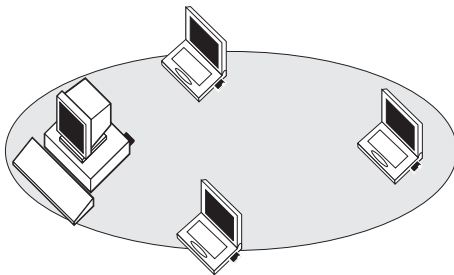
Peer-to-peer Wireless workgroup

You can use this option to set up a temporary or ad-hoc network in environment where no access points are available, for example in Small Office/Home Office (SOHO) environments.

As long as the stations are within range of one another, this is the easiest and least expensive way to set up a Wireless network.

Enterprise networking

NETWORK NAME
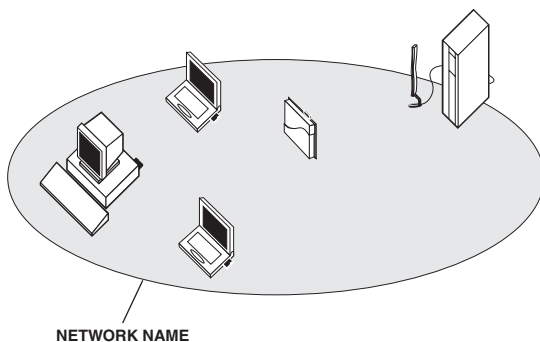
Stand-alone Wireless LAN

With the Wireless LAN Access Points you can connect to a corporate Local Area Network (LAN) infrastructure to have Wireless access to all network facilities. LAN Infrastructures may either be.

■ Stand-alone Wireless LANs as pictured in Figure above

■ Wireless network infrastructures connected to an existing Ethernet network as pictured in Figure below.

NETWORK NAME
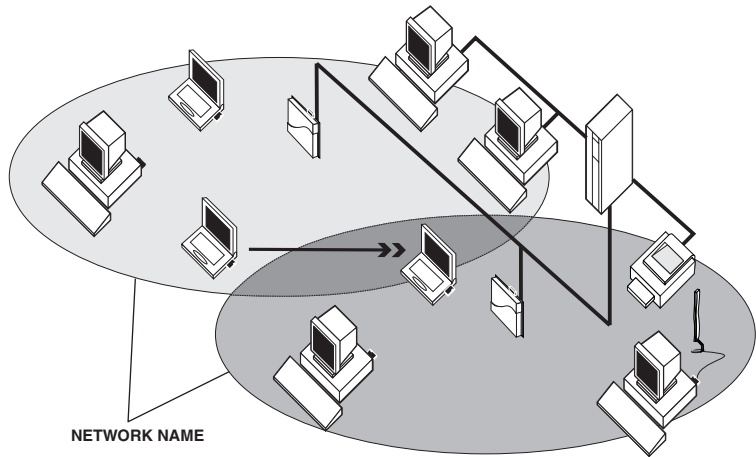
LAN Infrastructure

Easy configuration

The Wireless LAN card functions like any standard wired Ethernet card except it gives you the freedom of Wireless connections.

Where an Ethernet card requires a cable connection to a hub and/or patch panel, the cable physically limits the location of the wired connection.

Expanding or re-designing your network is easy. A Wireless LAN allows you connect your computer to a Local Area Network (LAN) from anywhere within the Wireless coverage area.

The Wireless LAN card is a radio product. Refer to the flyer Information to the User *for regulatory information that may apply in your country.*

Wireless LAN card features

The Toshiba Wireless LAN mini-PCI card is a Wireless network card that fits into a mini-PCI Type IIIA slot.

Wireless LAN card types

The Wireless LAN card is a Wireless network card that complies with the IEEE 802.11 standard on Wireless LANs (Revision B). The Wireless LAN card supports data rates up to 11 Mbit/s.

■ Wi-Fi (Wireless Fidelity) certified by the Wireless Ethernet Compatibility Alliance (WECA). This means that your Wireless hardware will communicate with other vendors' IEEE 802.11 compliant Wireless LAN products.

■ Fully compatible with any other Wireless LAN system based on Direct Sequence Spread Spectrum (DSSS) radio technology that complies with the IEEE 802.11 standard on Wireless LANs (Revision B).

Wireless LAN cards

The Wireless LAN card supports the following Wireless LAN features:

■ Automatic Transmit Rate Select mechanism in the transmit range of 11, 5.5, 2 and 1 Mbit/s.

■ Frequency Channel Selection (2.4 GHz).

■ Roaming over multiple channels.

■ Card Power Management.

■ Wired Equivalent Privacy (WEP) data encryption, based on the 128 bit RC4 encryption algorithm.

Basic settings for enterprise networks

If you wish to connect to an Enterprise Network, use the Add/Edit Configuration Profile window to:

■ Click the **Start** button from the Windows task bar.

■ Click **Settings**, and then **Control Panel**.

■ In the **Control Panel** window, double-click the **Wireless Network** icon.

■ Select to connect to an **Access Point**.

■ Set the correct **Network Name**.
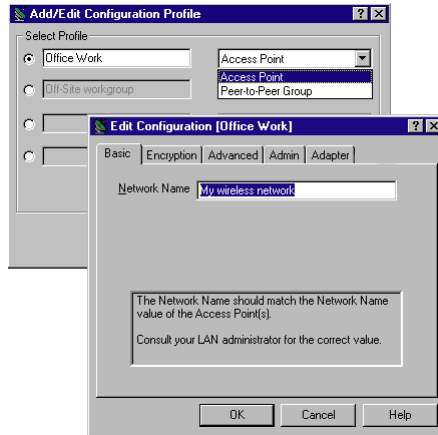
Edit Configuration window

1. In the field **Network Name**, define the name of the Wireless network to which you want to connect. You can either use:

   ■ The value **ANY** to connect to any Wireless LAN network in the vicinity of your computer.

   ■ An exact value to connect to a specific network.

   Consult your LAN administrator for the value that applies to your network.

   ■ The Network Name can be any alphanumeric string in the range of "a" to "z", "A" to "Z" and "0" to "9" with a maximum of 32 characters.

2. Click **OK** to confirm and return to the **Add/Edit Configuration Profile** window.

3. Click **OK** again to finish.

Basic settings for peer-to-peer workgroups

If you wish to connect to a peer-to-peer workgroup, use the Add/Edit Configuration Profile window to:

■ Click the **Start** button from the Windows task bar.

■ Click on **Settings**, and then on **Control Panel**.

■ In the **Control Panel** window, double-click the **Wireless Network** icon.

■ Select to connect to a **peer-to-peer workgroup**.

■ Set the correct **Network Name** and **Encryption Key.**
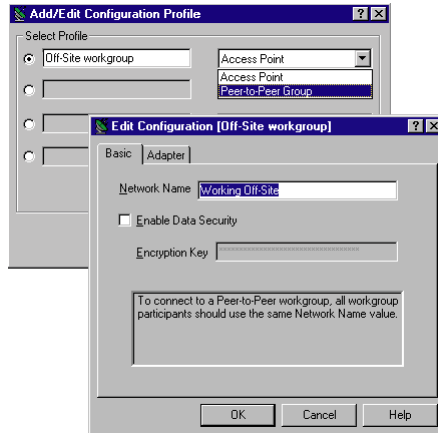
Edit Configuration window : peer-to-peer

1. In the field **Network Name** define the name of the Wireless network to which you want to connect.

The Network Name can be any alphanumeric string in the range of "a" to "z," "A" to "Z" and "0" to "9" with a maximum of 32 characters (case-sensitive).

■ If there is already a peer-to-peer group with this name available, your computer will automatically connect to this workgroup.

■ If there is not yet such a group available, your computer will automatically start one with this name.

2. Click **OK** to confirm and return to the **Add/Edit Configuration Profile** window.

3. Click **OK** again to finish.

Working with Wireless and Windows

This chapter provides general information about:

■ Using your Wireless LAN card

■ Viewing Other Computers

■ Viewing Wireless Link Quality

■ Viewing/Modifying Wireless LAN card Settings

■ Finding More Information

Using your Wireless LAN card

Radio antennas

The radio and antennas of your Wireless LAN card perform best in an open environment with as few obstacles as possible.

To achieve the maximum range for Wireless communications, do not cover the top panel and with objects such as books or thick stacks of paper.

View other computers

When multiple Wireless LAN stations are up-and-running in your Wireless network, you can use the procedure described below to display the other computers on the network:

1. Start Windows Explorer.

2. Scroll down the list of files and folders to find the item `Network Neighbourhood`.

3. Double-click the **Network Neighbourhood** item to display all stations in your Microsoft Networking Group.

4. To display other workgroups in the network environment, double-click the **Entire Network** icon.

If you cannot find other Wireless LAN networked computers, verify whether the other Wireless LAN computers are:

■ Powered up and logged onto the network.

■ Configured to operate with identical Microsoft Network settings concerning:

  ■ Networking Protocol

  ■ Wireless Network Name

  ■ Workgroup Name

To view or modify the **Station Name** or **Workgroup** of your computer, proceed as follows:

1. Click **Start** on the Windows task bar.
2. Click **Settings**, and then click **Control Panel**.
3. In the **Control Panel** window, double-click the **Network** icon.
4. In the **Network Settings** window, select the **Identification** tab.

   You can verify and change the **Station Name** or **Workgroup** parameters.

You have to restart your computer before changes to the Network Settings will be effected.

To verify the radio connection with other stations refer to *View Wireless Link Quality*.

Using the Client Manager

If you installed the Wireless LAN Client Manager you can use the Client Manager to:

■ Verify the quality of your Wireless connection to the network.

■ View/Modify the configuration settings of your Wireless LAN card.

The Client Manager icon is displayed in the **System Tray** on your Windows task bar at the right-side on the bottom of your screen, indicating that the Client Manager programs is running.

■ Click the icon once with your left mouse button to retrieve a more detailed status overview.

■ Click the icon once with your right mouse button to display a menu with more options.

View Wireless link quality

You can use Client Manager icon on the Windows task bar to verify the link quality of your network connection.

An overview of all possible icons is given in the table below. When the Client Manager icon is not indicating excellent or good radio connection, act as described in the table below.

	Colour	Description
	Green	Excellent radio connection
	Green	Good radio connection
	Yellow	Marginal radio connection:
		■ The radio signal is weak. Move closer to the Wireless LAN Access Point.
	Red	Poor radio connection:
		■ The radio signal is very weak. Save your files and move closer to the Wireless LAN Access Point.
	Red	No radio connection because:
		■ Looking for initial connection, or
		■ You have moved out of range of the network.
	Blank	Peer-to Peer network connection

View/modify Wireless LAN card settings

If you would like to view or modify Wireless LAN parameters, for example because you would like to connect to another network or type of network, proceed as follows:

1. Right-click on the Client Manager icon on the Windows task bar.

2. From the menu, select **Configuration Profile**, see Figure below, and select:

■ **Add/Edit Profile** to add a new profile or to modify an existing profile.

■ **One of the existing profiles** (if present) to select a profile without viewing or modifying the settings.

After you selecting another profile, the card will use the new profile to connect to the Wireless network.
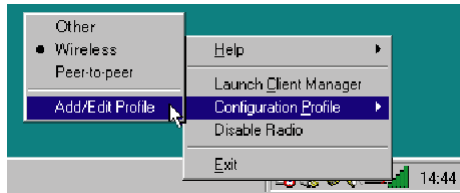
Edit Wireless Configuration Settings

If your **Client Manager** icon is not visible, you have to start the **Client Manager** program again:

1. Click **Start** from the Windows task bar.

2. Select **Programs**, and then select the **Toshiba Wireless Solution** workgroup.

3. Next select **Client Manager** to start the Client Manager program.

Alternatively you can to change the card configuration via the Control Panel:

1. Click **Start** from the Windows task bar.

2. Click **Settings**, and then click **Control Panel**.

3. In the `Control Panel` window, double-click the **Wireless Network** icon.

4. If you select new parameters, click,

■ the **OK** button to confirm your changes, or

■ the **Cancel** button to ignore them.

Advanced configurations

Although your Wireless LAN card will work fine in most network environments with the *Basic Parameters*, you may wish to explore the advanced parameters options as displayed in the Wireless LAN card's **Edit Configuration** window. You can set advanced parameters only if your computer is connected to an existing network. Consult your LAN administrator for details.

Encryption window

The encryption tab enables you to define the encryption keys that your Wireless LAN card should use to:

■ Decrypt Wireless messages received via its Wireless interface.

■ Encrypt data that will be transmitted via the Wireless interface.

Encryption needs to be the same for all Wireless LAN stations.
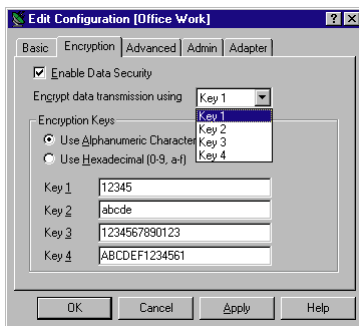
Encryption window

You can identify up to four different key values to decrypt Wireless data, and select one of these keys to encrypt Wireless data transmissions.

Advanced window

Use this window to set advanced parameters.
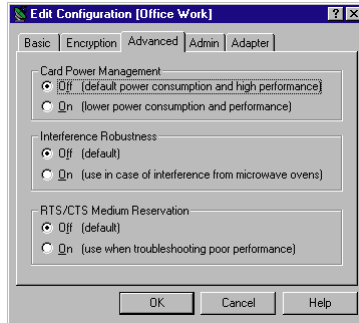
Advanced window

Card Power Management	To extend the battery life of (mobile) Wireless devices.
Interference Robustness	Can be activated in exceptional cases when troubleshooting slow performance of a Wireless LAN network that could be related to in-band interference from devices such as microwave ovens.
RTS/CTS Medium	This parameter can be activated: ■ If the density of Wireless LAN stations and access points is very low ■ As a result of poor network performance due to excessive frame collisions at the access points

Admin window

You can set the following parameters in the Admin window.
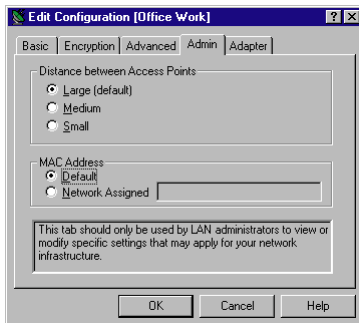
Admin parameters

Distance between	Depending on the number of access points in a Wireless
access points	LAN network this parameter controls the network performance.
MAC address	Can be activated in exceptional cases when troubleshooting slow performance of the Wireless LAN network that could be related to in-band interference from devices such as microwave ovens.

Card specifications

Form Factor	Mini-PCI TypeIIIA	
Colour	Black for Wireless LAN card	
Dimensions		
Weight		
Temperature and Humidity		
Operation	0 to 55 C	Maximum humidity 95%
Transit	-20 to 70 C	15 to 95% (no condensation)
Storage	-10 to 60 C	10 to 90% (no condensation)

Although the card may still operate in the range of –20 to 70 C, operation outside the range of 0 to 55 C may no longer be according to specifications.

Doze Mode	45mA
Receive Mode	250mA
Transmit Mode	350mA
Power Supply	3.3V

Compatibility	IEEE 802.11 Standard for Wireless LANS (DSSS)
	Wi-Fi (Wireless Fidelity) certified by the Wireless Ethernet Compatibility Alliance (WECA)
Network Operating System	Microsoft Windows® Networking
Host Operating System	Microsoft Windows® 98/Me/2000
	NDIS5 Miniport Driver
Media Access Protocol	CSMA/CA (Collision Avoidance) with Acknowledgement (ACK)
Data Rate	■ High 11 Mb/s
	■ Medium 5.5 Mb/s
	■ Standard 2 Mb/s
	■ Low 1 Mb/s
	The cards use an automatic Transmit Rate Select mechanism.

Radio characteristics

Radio characteristics of Wireless LAN cards may vary according to:

■ Country where the product was purchased

■ Type of product

Wireless communication is often subject to local radio regulations. Although Wireless LAN networking products have been designed for operation in the license-free 2.4 GHz band, local radio regulations may impose limitations on the use of Wireless communication equipment.

Refer to the flyer Information to the User *for regulatory information that may apply in your country.*

R-F Frequency Band	2.4GHz (2400-2483.5 MHz)
Modulation Technique	Direct Sequence Spread Spectrum
	■ CCK for High & Medium Transmit Rate
	■ DQPSK for Standard Transmit Rate
	■ DBPSK for Low Transmit Rate
Spreading	11-chip Barker Sequence
Bit Error Rate (BER)	Better than 10^{-5}
Nominal Output Power	15 dBm

	High Speed	Medium Speed	Standard Speed	Low Speed
Transmit Rate	11 Mb/s	5.5 Mb/s	2 Mb/s	1Mb/s
Receiver Sensitivity	-83 dBm	-87 dBm	-91 dBm	-94 dBm
Delay Spread (at FER of <1%)	65 ns	225 ns	400 ns	500 ns

The range of the Wireless signal is related to the Transmit Rate of the Wireless communication. Communications at lower Transmit range may travel longer distances.

The range values listed in Table F-5 are typical distances as measured at the Toshiba Wireless LAN laboratories. These values provide rule-of-thumb guides. They may vary according to the actual radio conditions at the location where the Wireless LAN product is installed.

■ The range of your Wireless devices can be affected when the antennas are placed near metal surfaces and solid high-density materials.

■ Range is also affected by obstacles in the signal path of the radio that may either absorb or reflect the radio signal.

The above table lists the typical ranges when used indoors in office environments such as the following:

■ In **Open Office environments**, where antennas can see each other, i.e. there are no physical obstructions between them.

■ In **Semi-open Office environments**, where work space is divided by shoulder-height, hollow wall elements; antennas are at desktop level.

■ In **Closed Office environments**, work space is separated by floor-to-ceiling solid walls.

Supported frequency sub-bands

Subject to the radio regulations that apply in your country, your Wireless LAN card may support a different set of 2.4 GHz channels (see following table).

Consult your Authorised Wireless LAN or Toshiba Sales office for information about the radio regulations that apply in your country.

Frequency Range	2400-2483.5 MHz
Channel ID	
1	2412
2	2417
3	2422
4	2427
5	2432
6	2437
7	2442
8	2447
9	2452
10	2457*
11	2462

* Factory-set default channels

When installing Wireless LAN cards, the channel configuration is managed as follows:

■ For Wireless clients that operate in a Wireless LAN Infrastructure, the Wireless LAN card will automatically start operation at the channel identified by the Wireless LAN Access Point. When roaming between different access points the station can dynamically switch to another channel if required.

■ For Wireless LAN cards installed in Wireless clients operating in a peer-to-peer mode, the card will use the default channel 10.

■ In a Wireless LAN Access Point, the Wireless LAN card will use the factory-set default channel (printed in bold), unless the LAN Administrator selected a different channel when configuring the Wireless LAN Access Point device.

Glossary

The terms in this glossary cover the topics discussed in this manual. Alternate naming is included for reference.

A

AccuPoint II: A pointing device integrated into the Toshiba computer keyboard.

adaptor: A device that provides an interface between two dissimilar electronic devices. For example, the AC adaptor modifies the power from a wall outlet for use by the computer. This terms also refers to the add-in circuit cards that control external devices, such as video monitors and magnetic tape devices.

allocate: To assign a space or function for a specific task.

alphanumeric: Keyboard characters including letters, numbers and other symbols, such as punctuation marks or mathematical symbols.

alternating current (AC): Electric current that reverses its direction of flow at regular intervals.

analogue signal: A signal whose characteristics such as amplitude and frequency vary in proportion to (are an analogue of) the value to be transmitted. Voice communications are analogue signals.

ANSI: American National Standards Institute. An organisation established to adopt and define standards for a variety of technical disciplines. For example, ANSI defined the ASCII standard and other information processing requirements.

antistatic: A material used to prevent the build-up of static electricity.

application: A group of programs that together are used for a specific task such as accounting, financial planning, spreadsheets, word processing, and games, etc.

ASCII: American Standard Code for Information Interchange. ASCII code is a set of 256 binary codes that represent the most commonly used letters, numbers, and symbols.

async: Short for asynchronous.

asynchronous: Lacking regular time relationship. As applied to computer communications, asynchronous refers to the method of transmitting data that does not require a steady stream of bits to be transmitted at regular time intervals.

AUTOEXEC.BAT: A batch file that executes a series of MS-DOS commands and programs each time you start the computer. This is no longer necessarily used when booting Windows 95 or Windows NT 4.0 and higher

B

backup: A duplicate copy of files kept as a spare in case the original is destroyed.

batch file: A file that can be executed from the system prompt containing a sequence of operating system commands or executable files. See also AUTOEXEC.BAT.

billion byte (Bi.B): A unit of data storage equal to 1,000,000,000 bytes. *See also* million byte.

binary: The base two number system composed of zeros and ones (off or on), used by most digital computers. The right most digit of a binary number has a value of 1, the next a value of 2, then 4, 8, 16, and so on. For example, the binary number 101 has a value of 5. *See also* ASCII.

BIOS: Basic Input Output System. The firmware that controls data flow within the computer. *See also* firmware.

bit: Derived from "binary digit," the basic unit of information used by the computer. It is either zero or one. Eight bits is one byte. *See also* byte.

Bluetooth: A short-range radio technology designed to simplify wireless communication among computers, communication devices and the Internet.

board: A circuit board. An internal card containing electronic components, called chips, which perform a specific function or increase the capabilities of the system.

boot: Short for bootstrap. A program that starts or restarts the computer. The program reads instructions from a storage device into the computer's memory.

bps: Bits per second. Typically used to describe the data transmission speed of a modem.

buffer: The portion of the computer's memory where data is temporarily stored. Buffers often compensate for differences in the rate of flow from one device to another.

bus: An interface for transmission of signals, data or electric power.

byte: The representation of a single character. A sequence of eight bits treated as a single unit; also the smallest addressable unit within the system.

C

cache memory: High speed memory which stores data that increases processor speed and data transfer rate. When the CPU reads data from main memory, it stores a copy of this data in cache memory. The next time the CPU needs that same data, it looks for it in the cache memory rather than the main memory, which saves time. The computer has two cache levels. Level one is incorporated into the processor and level two resides in external memory.

capacity: The amount of data that can be stored on a magnetic storage device such as a diskette (floppy disk) or hard disk. It is usually described in terms of kilobytes (KB), where one KB = 1024 bytes and megabytes (MB), where one MB = 1024 KB.

Card Dock II: A device that enables one-point connection to a number of peripheral devices and provides additional ports and slots.

card: Synonym for board. *See* board.

CardBus: An industry standard bus for 32-bit PC Cards.

Centronics: The printer manufacturer whose method of data transmission between a parallel printer and a computer has become an industry standard.

CGA: Colour/graphics adaptor. A video display protocol defined by the IBM Colour/Graphics Monitor Adaptor and its associated circuitry. This protocol supports two-colour 640x200 and four-colour 320x200 graphics, and 16-colour 640x200 and 320x200 text modes.

character: Any letter, number, punctuation mark, or symbol used by the computer. Also synonymous with byte.

chassis: The frame containing the computer.

chip: A small semiconductor containing computer logic and circuitry for processing, memory, input/output functions and controlling other chips.

CMOS: Complementary Metal-Oxide Semiconductor. An electronic circuit fabricated on a silicon wafer that requires very little power. Integrated circuits implemented in CMOS technology can be tightly packaged and are highly reliable.

cold start: Starting a computer that is currently off (turning on the power).

COM1, COM2, COM3 and COM4: The names assigned to the serial and communication ports.

commands: Instructions you enter at the terminal keyboard that direct the actions of the computer or its peripheral devices.

communications: The means by which a computer transmits and receives data to and from another computer or device. See parallel interface; serial interface.

compatibility: 1) The ability of one computer to accept and process data in the same manner as another computer without modifying the data or the media upon which it is being transferred. 2) the ability of one device to connect to or communicate with another system or component.

components: Elements or parts (of a system) which make up the whole (system).

computer program: A set of instructions written for a computer that enable it to achieve a desired result.

computer system: A combination of hardware, software, firmware, and peripheral components assembled to process data into useful information.

configuration: The specific components in your system (such as the terminal, printer, and disk drives) and the settings that define how your system works. You use the Hardware Setup, MaxTime or HW setup program to control your system configuration.

control keys: A key or sequence of keys you enter from the keyboard to initiate a particular function within a program.

controller: Built-in hardware and software that controls the functions of a specific internal or peripheral device (e.g. keyboard controller).

CPS: Characters per second. Typically used to indicate the transmission speed of a printer.

CPU: Central processing unit. The portion of the computer that interprets and executes instructions.

CRT: Cathode Ray Tube. A vacuum tube in which beams projected on a fluorescent screen-producing luminous spots. An example is the television set.

cursor: A small, blinking rectangle or line that indicates the current position on the display screen.

D

data bits: A data communications parameter controlling the number of bits (binary digits) used to make up a byte. If data bits = 7 the computer can generate 128 unique characters. If data bits = 8 the computer can generate 256 unique characters.

data: Information that is factual, measurable or statistical that a computer can process, store, or retrieve.

DC: Direct Current. Electric current that flows in one direction. This type of power is usually supplied by batteries.

default: The parameter value automatically selected by the system when you or the program do not provide instructions. Also called a preset value.

delete: To remove data from a disk or other data storage device. Synonymous with erase.

Desk Station V Plus: An expansion device that provides the computer with additional ports, slots and bays.

device driver: A program that controls communication between a specific peripheral device and the computer. The CONFIG.SYS file contains device drivers that MS-DOS loads when you turn the computer on.

disk drive: The device that randomly accesses information on a disk and copies it to the computer's memory. It also writes data from memory to the disk. To accomplish these tasks, the unit physically rotates the disk at high speed past a read-write head.

disk storage: Storing data on magnetic disk. Data is arranged on concentric tracks much like a phonograph record.

diskette: A removable disk that stores magnetically encoded data used on a microcomputer. Also called floppy disk.

display: A CRT, plasma screen, LCD, or other image producing device used to view computer output.

documentation: The set of manual and/or other instructions written for the users of a computer system or application. Computer system documentation typically includes procedural and tutorial information as well as system functions.

DOS: Disk operating system. *See* operating system.

driver: A software program, generally part of the operating system, that controls a specific piece of hardware (frequently a peripheral device such as a printer or mouse).

E

echo: To send back a reflection of the transmitted data to the sending device. You can display the information on the screen, or output it to the printer, or both. When a computer receives back data it transmitted to a CRT (or other peripheral device) and then retransmits the data to printer, the printer is said to echo the CRT.

EGA: Enhanced Graphics Adaptor. A video display protocol defined by the IBM Enhanced Graphics Adaptor and its associated circuitry for direct drive TTL displays that supports 16-colour/monochrome 640x350 and 16-colour 640x200 and 320x200 graphics, and 16-colour 640x350 and 320x350 text modes.

erase: *See* delete.

escape guard time: A time before and after an escape code is sent to the modem which distinguishes between escapes that are part of the transmitted data, and escapes that are intended as a command to the modem.

escape: 1) A code (ASCII code 27), signalling the computer that what follows are commands; used with peripheral devices such as printers and modems. 2) A means of aborting the task currently in progress.

execute: To interpret and execute an instruction.

Extended Capability Port: An industry standard that provides a data buffer, switchable forward and reverse data transmission, and run length encoding (RLE) support.

F

fast infrared: An industry standard that enables cableless infrared serial data transfer at speeds of up to 4 Mbps.

file: A collection of related information; a file can contain data, programs, or both.

firmware: A set of instructions built into the hardware which controls and directs a microprocessor's activities.

fixed disk: *See* hard disk.

floppy disk drive (FDD): An electromechanical device that reads and writes to floppy disks. *See also* diskette.

floppy disk: *See* diskette.

folder: An icon in Windows used to store documents or other folders.

format: The process of readying a blank disk for its first use. Formatting establishes the structure of the disk that the operating system expects before it writes files or programs onto the disk.

function keys: The keys labelled **F1** through **F12** that tell the computer to perform certain functions.

G

gigabyte (GB): A unit of data storage equal to 1024 megabytes. *See also* megabyte.

GND: Ground. An RS-232C signal used in the exchange of data between a computer and serial device.

graphics: The use of drawings, pictures, or other images, such as charts or graphs, to present information.

H

hard disk drive (HDD): An electromechanical device that reads and writes a hard disk. *See also* hard disk.

hard disk: A non-removable disk usually referred to as drive C. The factory installs this disk and only a trained engineer can remove it for servicing. Also called fixed disk.

Hardware Setup: A Toshiba utility that lets you set the parameters for various hardware components.

hardware: The physical electronic and mechanical components of a computer system: typically, the computer itself, external disk drives, etc. *See also* software and firmware.

hertz: A unit of wave frequency that equals one cycle per second.

hexadecimal: The base 16 numbering system composed of the digits 0 through 9 and the letters A, B, C, D, E, and F.

host computer: The computer that controls, regulates, and transmits information to a device or another computer.

hot dock/undock: Connecting or disconnecting a device to or from the computer while the computer's power is turned on.

hotkey: The computer's feature in which certain keys in combination with the extended function key, **Fn**, can be used to set system parameters, such as speaker volume.

I

I/O devices: Equipment used to communicate with the computer and transfer data to and from it.

I/O: Input/output. Refers to acceptance and transfer of data to and from a computer.

icon: A small graphic image displayed on the screen or in the indicator panel. In Windows, an icon represents an object that the user can manipulate.

iLINK (IEEE1394): This port enables high-speed data transfer directly from external devices such as digital video cameras.

infrared port: A cableless communications capable of using infrared signals to send serial data.

input: The data or instructions you provide to a computer, communication device or other peripheral device from the keyboard or external or internal storage devices. The data sent (or output) by the sending computer is input for the receiving computer.

instruction: Statements or commands that specify how to perform a particular task.

interface: 1) Hardware and/or software components of a system used specifically to connect one system or device to another. 2) To physically connect one system or device to another to exchange information. 3) The point of contact between user, the computer, and the program, for example, the keyboard or a menu.

interrupt request: A signal that gives a component access to the processor.

J

jumper: A small clip or wire that allows you to change the hardware characteristics by electrically connecting two points of a circuit.

K

K: Taken from the Greek word kilo, meaning 1000; often used as equivalent to 1024, or 2 raised to the 10th power. *See also* byte and kilobyte.

KB: *See* kilobyte.

keyboard: An input device containing switches that are activated by manually pressing marked keys. Each keystroke activates a switch that transmits a specific code to the computer. For each key, the transmitted code is, in turn, representative of the (ASCII) character marked on the key.

kilobyte (KB): A unit of data storage equal to 1024 bytes. *See also* byte and megabit.

L

level 2 cache: *See* cache.

Light Emitting Diode (LED): A semiconductor device that emits light when a current is applied.

Liquid Crystal Display (LCD): Liquid crystal sealed between two sheets of glass coated with transparent conducting material. The viewing-side coating is etched into character forming segments with leads that extend to the edge of the glass. Applying a voltage between the glass sheets darkens the liquid crystal to provide contrast to lighted portions of the display.

LSI: Large Scale Integration. 1) A technology that allows the inclusion of up to 100,000 simple logic gates on a single chip. 2) An integrated circuit that uses the large scale integration.

M

magiCDisc: A Toshiba utility that lets you create a CD-ROM data base for quick access to CD-ROM data.

main board: See motherboard.

maths co-processor: A circuit built into the processor that is dedicated to intensive math calculations.

MaxTime: A Toshiba utility that lets you set the parameters for various power-saving functions.

MDA: Monochrome Display Adaptor. A video display protocol defined by the IBM Monochrome Display Adaptor and its associated circuitry for direct drive TTL displays that supports a monochrome 720x350 text mode.

megabyte (MB): A unit of data storage equal to 1024 kilobytes. *See also* kilobyte.

megahertz: A unit of wave frequency that equals 1 million cycles per second. *See also* hertz.

menu: A software interface that displays a list of options on the screen. Also called a screen.

microprocessor: A hardware component contained in a single integrated circuit that carries out instructions. Also called the central processing unit (CPU), one of the main parts of the computer.

million byte (GB): A unit of data storage equal to 1,000,000 bytes.

MMX: Refers to microprocessors with additional instructions beyond the x86 standard. The instructions were developed on the basis of multimedia code requirements and thus improve the performance of multimedia applications.

mode: A method of operation, for example, the boot mode or the resume mode.

modem: Derived from modulator/demodulator, a device that converts (modulates) digital data for transmission over telephone lines and then converts modulated data (demodulates) to digital format where received.

monitor: A device that uses rows and columns of pixels to display alphanumeric characters or graphic images. *See* CRT.

motherboard: A name sometimes used to refer to the main printed circuit board in processing equipment. It usually contains integrated circuits that perform the processor's basic functions and provides connectors for adding other boards that perform special functions. Sometimes called a main board.

MPEG: Moving picture coding expert group is an industry standard architecture for compression of video signals.

N

non-system disk: A formatted diskette (floppy disk) you can use to store programs and data but you cannot use to start the computer. *See* system disk.

non-volatile memory: Memory, usually read-only (ROM), that is capable of permanently storing information. Turning the computer's power off does not alter data stored in non-volatile memory.

numeric keypad overlay: A feature that allows you to use certain keys on the keyboard to perform numeric entry, or to control cursor and page movement.

O

OCR wand: A device that reads, using an optical device, hand written or machine printed symbols into a computer. *See also* OCR.

OCR: Optical Character Recognition (reader). A technique or device that uses laser or visible light to identify characters and input them into a storage device.

on-line state: A functional state of a peripheral device when it is ready to receive or transmit data.

operating system: A group of programs that controls the basic operation of a computer. Operating system functions include interpreting programs, creating data files, and controlling the transmission and receipt (input/output) of data to and from memory and peripheral devices.

output: The results of a computer operation. Output commonly indicates data 1) printed on paper, 2) displayed at a terminal, 3) sent through the serial port of internal modem, or 4) stored on some magnetic media.

P

parallel interface: Refers to a type of information exchange that transmits information one byte (8 bits) at a time. *See also* serial interface.

parallel: Refers to two or more processes or events that can occur simultaneously, and without interfering with each other. *See also* serial.

parity: 1) The symmetrical relationship between two parameter values (integers) both of which are either on or off; odd or even; 0 or 1. 2) In serial communications, an error detection bit that is added to a group of data bits making the sum of the bits even or odd. Parity can be set to none, odd, or even.

password: A unique string of characters used to identify a specific user. The computer provides various levels of password protection such as user, supervisor and eject.

pel: The smallest area of the display that can be addressed by software. Equal in size to a pixel or group of pixels. *See* pixel.

peripheral component interconnect: An industry standard 32-bit bus.

peripheral device: An I/O device that is external to the central processor and/or main memory such as a printer or a mouse.

pixel: A picture element. The smallest dot that can be made on a display or printer. Also called a pel.

plug and play: A capability with Windows 95 that enables the system to automatically recognise connections of external devices and make the necessary configurations in the computer.

port: The electrical connection through which the computer sends and receives data to and from devices or other computers.

Port Replicator 2001 and Enhanced Port Replicator 2001: Devices that enables one-point connection to a number of peripheral devices and provides additional ports and slots.

printed circuit board (PCB): A hardware component of a processor to which integrated circuits and other components are attached. The board itself is typically flat and rectangular, and constructed of fibreglass, to form the attachment surface.

program: A set of instructions a computer can execute that enables it to achieve a desired result. See also application.

prompt: A message the computer provides indicating it is ready for or requires information or an action from you.

R

Radio frequency interference (RFI) shield: A metal shield enclosing the printed circuit boards of the printer or computer to prevent radio and TV interference. All computer equipment generates radio frequency signals. The FCC regulates the amount of signals a computing device can allow past its shielding. A Class A device is sufficient for office use. Class B provides a more stringent classification for home equipment use. Toshiba portable computers comply with Class B computing device regulations.

RAMDRIVE: Part of the computer's random access memory assigned to simulate a disk. RAMDRIVE is a feature of MS-DOS.

Random Access Memory (RAM): High speed memory within the computer circuitry that can be read or written to.

RCA jack: A single-pin connector that carries composite video signals, which include both contrast and colour information. See also S-video.

restart: Resetting a computer without turning it off (also called 'warm boot' or 'soft reset'). To restart the computer, press **Ctrl** + **Alt** + **Del** while the computer is on. See also boot.

resume: A feature that lets you turn off the power without first exiting a program and retain your data in RAM. When you turn on the computer, the screen appears the same as when you turned it off.

RGB: Red, green, and blue. A device that uses three input signals, each activating an electron gun for a primary additive colour (red, green, and blue) or port for using such a device. *See also* CRT.

RJ11: A modular telephone jack.

ROM: Read Only Memory*:* A non-volatile memory chip manufactured to contain information that controls the computer's basic operation. You cannot access or change information stored in ROM.

RS-232C: The Electronic Industries Association (EIA) interface standard that describes the 25-pin connector interface and control, data, and status signals that allow asynchronous communications between computers, printers, communications and other peripheral devices.

S

SCSI: Small Computer System Interface is an industry standard interface for connection of a variety of peripheral devices.

serial communications: A communications technique that uses as few as two interconnecting wires to send bits one after another.

serial interface: Refers to a type of information exchange that transmits information sequentially, one bit at a time. Contrast: Parallel interface.

serial port: A communications port to which you can connect devices, such as a modem, mouse, or serial printer.

serial: The handling of data bits one after the other.

SIO: Serial Input/Output. The electronic methodology used in serial data transmission.

soft key: Key combinations that emulate keys on the IBM keyboard, change some configuration options, stop program execution, and access the numeric keypad overlay.

software: The set of programs, procedures and related documentation associated with a computer system. Specifically refers to computer programs that direct and control the computer system's activities. *See also* hardware.

stop bit: One or more bits of a byte that follow the transmitted character or group codes in asynchronous serial communications.

subpixel: Three elements, one red, one green and blue (RGB), that make up a pixel on the colour LCD. The computer sets subpixels independently, each may emit a different degree of brightness. See also pixel.

S-video: This connection provides separate lines for contrast and colour, which produces a video image superior to that produced by a composite connection. See also RCA jack.

synchronous: Having a constant time interval between successive bits, characters or events.

system disk: A disk that has been formatted with an operating system. For MS-DOS the operating system is contained in two hidden files and the COMMAND.COM file. You can boot a computer using a system disk. Also called an operating system disk.

T

TDIAG: A Toshiba diagnostic program used for testing and configuring the computer system's resources.

terminal: A typewriter-like keyboard and CRT display screen connected to the computer for data input/output.

TFT: A colour LCD technology that applies individual transistors to each pixel enabling fine display control and excellent screen legibility.

TTL: Transistor-transistor logic. A logic circuit design that uses switching transistors for gates and storage.

U

USB: The *Universal Serial Bus* is a way to connect up to 127 devices through one connector. A new development in 1997, this offers significantly improved ease of use and reliability than earlier expansion methods.

V

VGA: Video graphics array is an industry standard video adaptor that lets you run any popular software.

volatile memory: Random access memory (RAM) that stores information as long as the computer is connected to a power source.

W

Warm dock/undock: Connecting or disconnecting a device to or from the computer while the computer is suspended.

warm start: Restarting or resetting a computer without turning it off.

window: A portion of the screen that can display its own application or document. Often used to mean a Microsoft Windows window.

wireless LAN: A short-range radio technology designed to simplify wireless communication with other LAN systems based on Direct Sequence Spread Spectrum radio technology that complies with the IEEE 802.11 Standard (Revision B) .

write protection: A method for protecting a diskette (floppy disk) from accidental erasure.

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