



Computer Technician

Technicians' Tools



Enabling Objectives

- Introduction to standard tools
- Introduction to specialized tools and supplies
- Introduction to software tools
 - The domestic tools
 - The foreign tools
- Introduction to measurement tools

Standard Tools

- Traveling toolkit
 - Screwdrivers (nonmagnetic)
 - Slotted (standard)
 - Phillips (cross-head recess) and
 - Torx (star-like)
 - Nut driver
 - Hex-head socket end that grips outside of screw head
 - Chip puller
 - To remove ICs & chips



Standard Tools

- Traveling toolkit (Cont.)
 - Parts retriever
 - Retractable claws to retrieve dropped parts
 - Tweezers
 - For picking up small screws & removing jumpers
 - Needle-nose pliers
 - Hold screws/connectors when fingers too big
 - Allen wrenches
 - To loosen/tighten allen screws



Standard Tools

- Traveling toolkit (Cont.)
 - Diagonal cutters (dikes)
 - For cutting ties, wire or plastic
 - Flashlight
 - To see inside computer case (dark)
 - To read small print on parts



Specialized Tools & Supplies

- Specialized Tools (Cont.)
 - Wire strippers
 - Strip insulative shielding from wires
 - Multimeter – measures:
 - volts (voltage)
 - amps (current)
 - ohms (resistance)
 - Soldering iron
 - Seldom used
 - Leave at the shop



Specialized Tools & Supplies

- Supplies (Cont.)
 - Compressed air
 - For cleaning :
 - Fans
 - Grill work
 - Inside the case
 - keyboards
 - Electrical tape
 - For wrapping wire ends & insulating components
 - Soft lint-free cloth
 - For cleaning glass and plastic components



Specialized Tools & Supplies

- Supplies (Cont.)
 - Spare parts
 - Assortment of screws
 - Expansion card inserts
 - Faceplates
 - Cables
 - Mounting rails



Networking Tools

- Cable Stripper
- Cable Crimper
- Cable Tester
- Punch Down Tool
- Supplies
 - 8p8c RJ45 connector
 - Ethernet Cable





Software Tools

- A PC's problem is not always apparent.
- The problem often lies deep inside the computer.
- You must employ something other than hardware tools.
- This is where diagnostic and troubleshooting software comes in.
- Installing and uninstalling the tools after each use or getting your customer to purchase a license may be involved.



Software Tools

- Luckily, some of these tools often come as a part of the operating system.
 - For our purposes, this group of software will be classified as “The domestic tools”.
- Some software tools must be licensed.
 - For our purposes, this group of software will be classified as “The foreign tools”.



Software Tools

- The domestic tools
 - BIOS POST
 - One of most effective diagnostic tools available
 - Built right into the PC
 - Runs automatically every time PC is powered on
 - If serious hardware problem exists, POST will find it and report it to you
 - POST card
 - A piece of hardware
 - Makes the POST even better tool
 - Dedicated circuit that interprets POST error codes
 - Saves you from having to count beeps



Software Tools

- The domestic tools (Cont.)
 - MSD.EXE
 - DOS utility creates and reports brief inventory of PC
 - Useful for seeing a system's configuration
 - BIOS
 - Disks
 - Memory
 - System resource assignments (IRQs, I/O addresses)
 - Can run in DOS mode
 - SCANDISK.EXE
 - Checks and reports hard disk problems
 - File system corruption
 - Hard disk read errors

Software Tools

- The domestic tools (Cont.)
 - MEM.EXE
 - DOS utility
 - Provides details about the memory configuration and usage on a PC
 - DEFRAG.EXE
 - DOS utility
 - Arranges the data clusters on the disk to improve disk efficiency



Software Tools

- The domestic tools (Cont.)
 - SYSEDIT.EXE
 - View or edit:
 - .INI
 - AUTOEXEC.BAT
 - CONFIG.SYS
 - Other system files
 - Device Manager
 - If suspected problem is caused by resource conflict, IRQ, DMA channel, or I/O address
 - Property shows: Device driver and resource settings



Software Tools

- The foreign tools
 - You can use three types of software tools to help troubleshoot, diagnose, or repair PC problems:
 - Antivirus
 - A variety of antivirus software packages on market
 - Have an antivirus program on a floppy
 - Diagnostic and troubleshooting
 - A variety available
 - Perform troubleshooting, system tune-ups hardware diagnostics and system status reporting



Software Tools

- The foreign tools (Cont.)
 - You can use three types of software tools to help troubleshoot, diagnose, or repair PC problems:
 - Uninstaller
 - Removes conflicting or out-of-date DLLs, etc.
 - Removes orphaned or unwanted files

Measurement Tools

- The multimeter
 - Most PC technicians carry a multimeter in their travel tool kit.
 - Multimeter measures
 - Electrical resistance
 - Voltage
 - Current
 - Most multimeters are battery powered



Measurement Tools

- The multimeter (Cont.)
 - You must set three things to use it:
 - Type of current (AC or DC)
 - What you are measuring:
 - Volts
 - Amps
 - Ohms
 - Range of values expected



Measurement Tools

- The multimeter (Cont.)
 - Has two probes
 - Red (positive)
 - Place on hot or high point
 - Black (negative)
 - Place on ground or low point
 - Voltage is difference in the readings of these two points



Technicians' Tools Summary



- The standard technicians' traveling tool kit was discussed in detail.
- Specialized tools used by the technician along with some of the supplies taken to the job site were also discussed in detail
- Software tools were broken into two categories:
 - Domestic tools
 - Foreign tools
- We concluded with a brief look at the multimeter