

Operational Procedures

Chapter 19

This presentation covers:

- > Operational Procedures Overview

Operational Procedures Overview

- > Electronics need to be protected from moisture, dust, extreme temperature fluctuations, and weight-bearing loads
- > Toxic fumes can cause degradation of components
- > Electronic waste (computers, mobile devices, batteries, laser printer toner cartridges, and monitors) is considered toxic waste
- > To protect computer equipment with surge (power) suppressors, personal enclosures, and clean rooms
- > Personal protective equipment and personal safety techniques are necessary.
- > To properly handle and store electronics using anti-static bags, ESD straps, and ESD mats
- > Equipment grounding, self-grounding, and fire safety knowledge is important

OSHA

- > Occupational Safety and Health Administration (OSHA) is a division of the Federal Department of Labor
- > OSHA promotes safe and healthy working conditions by enforcing standards and providing workplace safety training
- > In addition to OSHA, the Environmental Protection Agency (EPA) standards and local government regulations recognize that workplace environments should be free of harmful and/or hazardous chemicals or situations
- > An important form required by OSHA is the material safety data sheet (MSDS), which out-line handling, storage procedures, disposal, and first aid on all potentially harmful or hazardous

Fire Safety

- > If a fire occurs inside a computer or peripheral, unplug the equipment if possible, but do not put yourself in harm's way attempting to do this
- > Quick information about classes of fires:
 - > Class A fires involve paper, wood, cloth, or other normal combustibles.
 - > Class B fires involve flammable liquids and gases.
 - > Class C fires involve electrical or electronic equipment.



Pull fire extinguisher pin

A Review of Safety Equipment in the Technical Field Kit

- > Personal Protective Equipment (PPE)
- > Safety goggles or glasses
- > Gloves
- > Dust mask or air filter mask



Safety goggles



Dust/air mask

Personal Safety

- > Remove jewelry, watches, dangling necklaces/earrings, or ID lanyards that could get caught, hooked, or entangled in the equipment.
- > Disconnect power cords.
- > Be sure that the work area is clear of liquids (coffee, soda, water bottles) and foods that may spill or contaminate the equipment.
- > Remember to use good lifting techniques (use your legs, not your back) and be conscious of the 40- to 50-pound weight limit
- > Be familiar with the location of the nearest fire extinguisher with the nearest fire exit in your workplace.

Computer Disposal/Recycling

- > Computers and other electronic devices contain materials such as beryllium, chromium, cadmium, lead, mercury, nickel, and zinc
- > Plastics that are part of computers are hard to isolate and recycle, but many electronic parts can be recycled.
- > Cathode ray tubes (CRTs) are found in older displays, and TVs usually contain enough lead and mercury to be considered hazardous waste
- > In Florida and New York, steps have been taken to increase CRT recycling; however, other states regulate all CRTs as hazardous waste and ban them from being sent to landfills.

Toner Safety and Disposal

Safety pointers to remember about toner safety:

- > Remember to always wear some type of rubber or nitrile gloves and a dust mask when handling toner cartridges
 - > Inhalation of toner particles poses respiratory damage equivalent to smoking
- > Do not attempt to clean up any loose toner particles with a regular vacuum sweeper as the toner particles may seep into the vacuum's motor and melt
 - > Always use a high-efficiency particulate air (HEPA) vacuum bag in the vacuum cleaner
- > Allow the printer (and cartridge) to cool before repairing or replacing
 - > The fusing assembly and heated toner can cause severe burns



Spilled toner

Proper Component Handling and Storage

Brief review of anti-static bags:

- > Remember to use anti-static bags for storing adapters and motherboards when not in use for an extended period of time
- > When repairing a computer, wear an anti-static strap, ESD strap , and/or heel strap to prevent
- > Place a computer that is being repaired on an ESD
- > If an anti-static wrist strap or anti-static heel strap is not available, it is recommended that after removing the external case, you rest your non-dominant arm on an unpainted metal part, leaving your dominant hand free to work the component parts

Battery Backup

- > Battery backup provides power to the computer when a brownout or blackout occurs
- > Battery backup for a computer is provided by a UPS or an SPS
- > Laser printers should not be plugged into a battery backup
 - > Voltages inside the laser printer are usually too high for the UPS to handle (especially the initial surge)

Troubleshooting Theory Review

1. Identify the problem.
2. Establish a theory of probable cause.
3. Test the theory to determine the cause.
4. Establish a plan of action and implement it.
5. Verify full system functionality and if applicable, implement preventive measures.
6. Document findings, actions, and outcomes.

Take detailed notes when identifying a problem

Computer Terms

Refer to the glossary terms at the end of the textbook chapter. Review Chapter 19 and become familiar with the terms.

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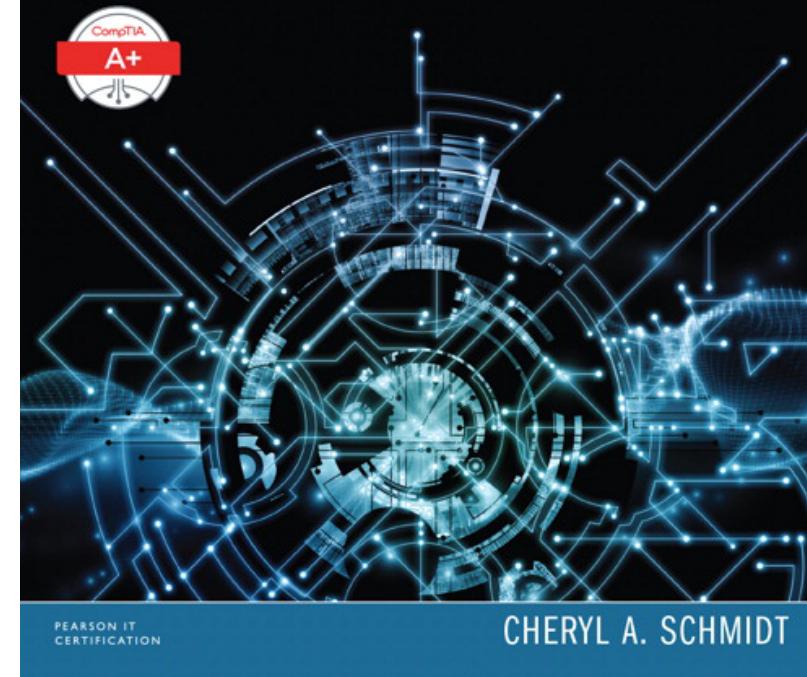
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CHERYL A. SCHMIDT