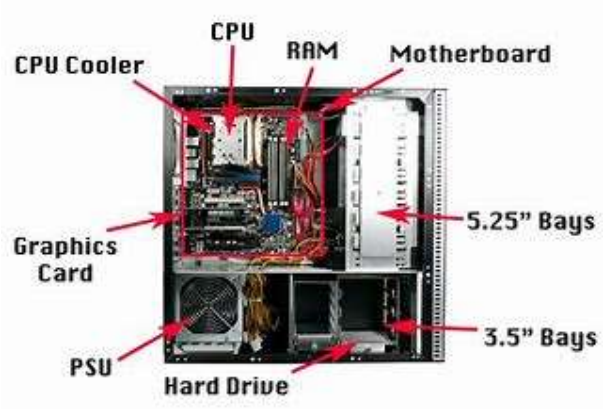
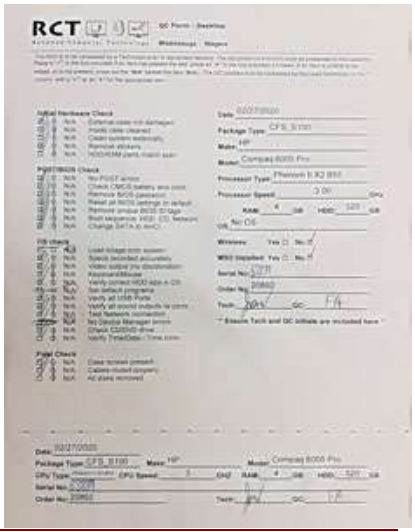
Computer Teardown, Maintenance, and Rebuild Safety



A great way to learn about computer hardware is through a teardown, maintenance, and rebuild process. To get started with this process, there are several preliminary things to be aware of such as your working location and resources, basic tools, cleaning process, working with electrical and electronics, and computer handling.

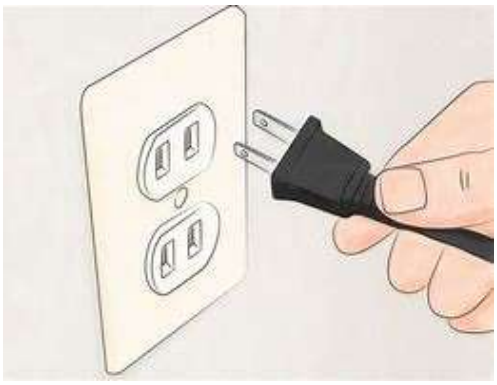
For working location, it should be a practical space with a non-conductive table work area with good lighting and enough space to take a computer apart and easy access to outside, for dust cleaning. A cart and air compressor would also be helpful to have around to help with cleaning. When lifting anything with weight, remember to use your legs and not your back. When done working with your computer, wash hands as they tend to have oil and embedded dirt which you will pick-up.

A Phillips head screwdriver is the most common and basic tool needed to work on a computer, but several other tools would also come in handy such Torx, hex, flat drivers, wire cutter/stripper/crimper, antistatic wrist strap, needle nose pliers and/or tweezers. It is common for a computer repair person to have a convenient small compact case, full of an assorted common related tools to use with computers. It is also important to have some cleaning tools/accessories such as a soft microfiber cloth or similar, isopropyl alcohol, compressed air or specially designed electronics antistatic vacuum cleaner for computers, part organizer, and cable ties.



Before taking a computer apart, always check the current condition of the computer with observation, make/brand/model number, testing the operation and recording that information. Professional companies will usually have a form/checklist they will fill out for common maintenance and refurbishing of systems. Remove metal watch, rings, or other jewellery when working on computers, as these are potential hazards.

Before taking the computer apart, ensure the power is off to the computer and unplugging power cable for extra safety, and ensure you are grounded and/or use an antistatic wrist band as a precaution to prevent accidently damaging any voltage sensitive electronic components. Don't open any components that say "No serviceable components inside" such as power supplies, as they have capacitors that hold enough charge to stop one's heart, after being turned off.



Using compressed air with safety glasses is the best way to get dust, dirt, and debris out of a computer case in general before removing components and is best done outside as to not inhale or push the dust back into the room. Use short quick bursts to dislodge and push out the dust. Remember air pressure is dangerous, so don't point at anyone or yourself – 5 PSI can rupture your lungs, 12 PSI can blow out an eye socket while 40 PSI can blow an eardrum, 100 PSI to break the skin, while an air bubble in the bloodstream can lead to a fatal embolism. Ensure you block fans from spinning up to prevent damage to bearings.

When unscrewing component fasteners, have a small container for keeping all of your screws organized, so they don't get lost. Be careful inside a computer case as there are a lot of sharp edges to get cut on. After computer components are removed from case, more air cleaning will most likely be necessary for those hard-to-reach points inside the case and components. For a further deep clean to remove embedded dirt and dust, use a soft rag or strong paper towel with sparingly amount of isopropyl alcohol to clean embedded dust on fans, components, and case internals. A good habit to put components back in reverse order, ensure cable connectors and slot components are fully pushed in and in correctly, and cables are in a neat and organized manner to maximize air flow for internal air cooling.