

Laptop Features

- **Portable computers have an Fn (function) key to activate alternative Function key options**
- **Use Settings in Windows to control many aspects of portable computers**
- **Some laptops feature removable screens, turning laptop into tablet**
- **Use a lock to secure a laptop when in a public space**
- **Docking stations and port replicators extend the capabilities of some laptops**

99% of the issues that run on a Desktop are the same as a Laptop

The CompTIA exam will mention an issue being on a Laptop, just to trick you into thinking this is something that specially only happens to Laptops.

Function Keys -

Dual Displays - Duplicating your Screen

Touchpad (on/off)

Economy Mode - not using as much Power

Camera (on/off)

Airplane Mode - turns on/off Bluetooth & 802.11 (Wireless)

Volume Adjustment - higher & lower

Screen Brightness - brighter & dimmer

Keyboard Backlight - brighter & dimmer

Gaming Mode - setting that runs your fans at higher speeds

Settings → Devices

Bluetooth - Turn On/Off, and shows all of your Connected/Disconnected Devices

Touchpad - Can adjust Sensitivity

Settings → Privacy

Location - GPS (on/off) - Great to use for Finding your Device! Mike likes this On!



Physical Laptop Lock & Cable Lock

Docking Station - Proprietary Connector that you drop the Laptop into that's Preconnected to a Monitor, Keyboard, etc. Used for better Peripherals.

Port Replicator - This is an alternative to a Docking Station. Basically a big USB Hub.

Laptop Hardware Troubleshooting - The Tools

- Start laptop repair by reviewing manufacturer online information
- The iFixit Web site offers a lot of user-generated how-to guides
- Use caution on screws and connections;
take pictures of the disassembly process

Laptops are all different on the Inside

Tons of Screws, Double & Single Sided Tape, Weak Connectors
for plugging things in. Take your time & be careful.

Look online for your Maintenance Guide/Manual

This will show you where certain parts will be on the inside,
and it'll give you the part numbers!
And, how to replace certain parts.

Mike loves using Ebay.com to find parts.

They sell a ton of dead laptops. Often cheaper than buying individual parts!

Antistatic Mat, iFixit Tool Kit, Power Screwdriver, One Sided Tape (used for screws!)

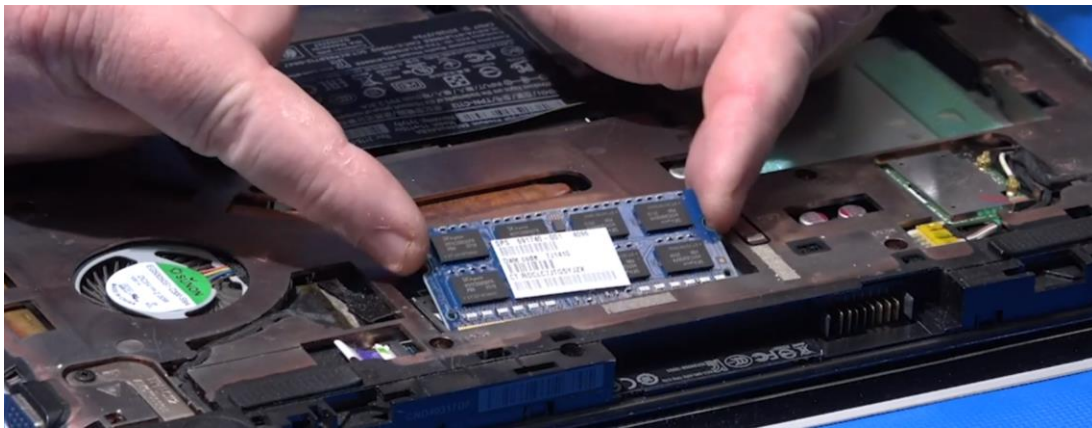
Laptop Hardware - Core Hardware

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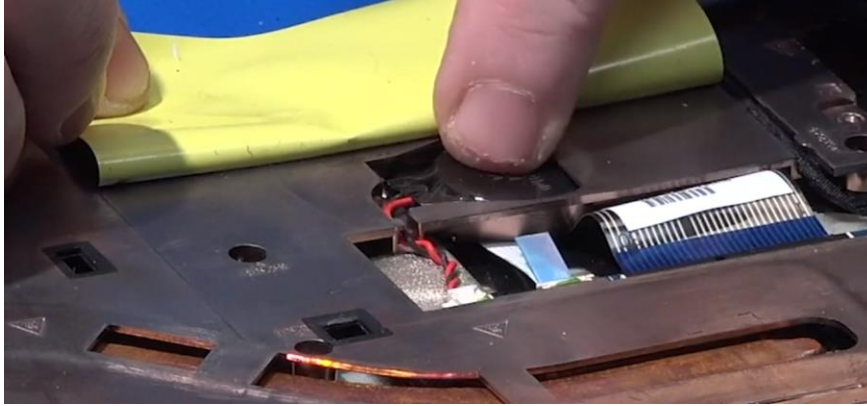
Usually the first step to Disassembling a computer is to take out the Battery



2.5" SATA Hard Drive may have a Heat Shield
which needs to be put onto the new Hard Drive if it's being replaced.



SODIMM RAM - This system only has 1 slot for RAM, whereas others will have more
This is something to consider for expandability when purchasing a Laptop!



Real-time Clock Battery - Instructions said that it has (black) Double Sided Tape
Pry it out using a Spudger



Mini-PCIe Express/Expansion Slot - The Black & White Wire Connections
are an Indicator to Mike that these are Antennas for a
Wireless Network Card (802.11) / Bluetooth Module.
This Antenna runs up and into the Monitor!



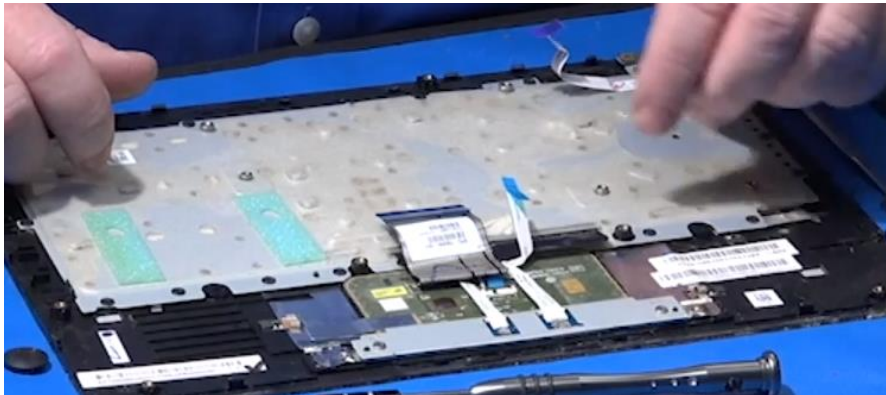
Optical Drive - Just take out the few Screws and Slide it out!
This Optical Drive has its Part Number on the Drive itself,
which makes it that much easier to find a replacement on Ebay

Laptop Hardware - CPU & Motherboard

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Getting into the Deeper stuff can become a real challenge (CPU, Mobo, Ventilation)
Require a little extra surgery

To Remove the Monitor, we need to consider the Antennas
that connected into the PCIe Expansion Slot.



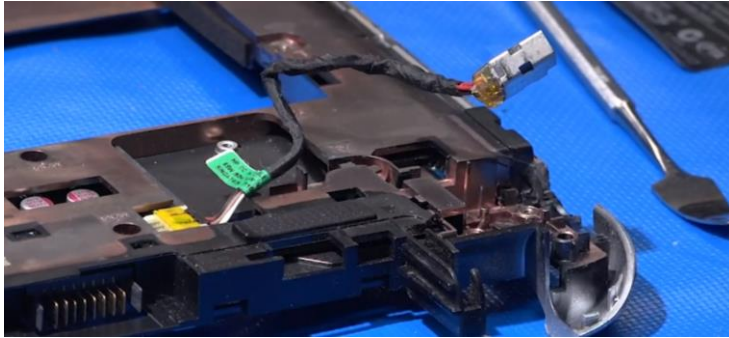
This is the back of the Keyboard & Touchpad - they're both connected to a Controller
If you're replacing a Keyboard, or Touchpad, you might as well replace
the both of them considering you're already in here.



Mike's Index Finger is "pointing at" the Smart
Card Reader, which is also used for USB

And you can see below it we have a Fan.

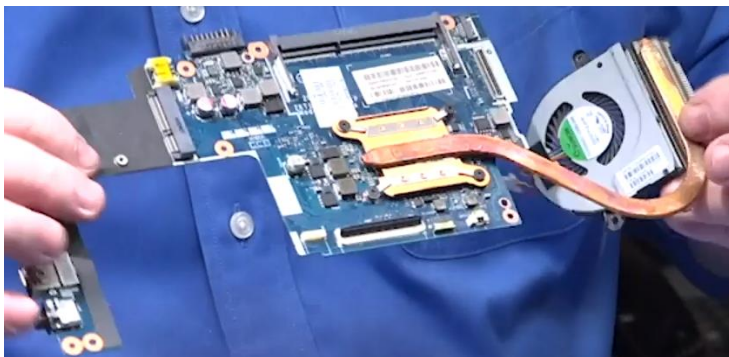
Both of these often need to be Replaced.



DC Jack - Charging Circuit

If you have a Battery that's running just fine while it's Plugged in, but once you Unplug it, it's down to 0%. The Battery usually is just fine. These Charging Circuits go out all of the time.

There's been countless times where Mike bought a "dead" \$2000 Laptop that just needed this \$3 component to be replaced.



Motherboard with CPU & Fan - the CPU is under the Copper Heat Sink



We can see this CPU is Soldered onto the Mobo which is very common

To a Laptop, you're able to -

Add more RAM New Hard Drive Upgrade 802.11 Wireless Card
Laptop Not Charging (Charging Circuit is hard to get to)
For most cases, you're not able to Upgrade a CPU (but not impossible)

Touring Your Laptop Display

- Check connections when replacing laptop monitors
- Spudgers and heat guns are essential monitor repair tools
- Inside the monitor are usually antennas, a camera, and more

LCD Monitors - for a Desktop, you can open these up, replace parts, etc

Laptop Monitors - Mike typically doesn't mess with these. Tend to be sealed systems.
In general, just replace the entire (inexpensive) Monitor.

Connectors -

- 1 Connector - handles all of the Screen, Touch Screen, Webcam, and a Light for the Webcam.
- 2 Connectors - for the Wi-Fi Antennas

You need to use a lot of Spudgers & Heat Guns (for melting glue)



We can trace the Antenna Wires to these 2 End Points

You'll notice connections and wires for the Touch Screen, the Monitor Output, and for the Camera.