



Topic 3: _____

Parts of a Conventional Mobile Phone

A mobile phone has several parts or components. It is important for you to know the parts and understand their functions so that you can easily diagnose and solve problems. How many parts of a mobile phone do you know? Take a minute to think about it and then complete the following activity.



Activity 3:

Parts of a mobile phone. (5 minutes)

Name at least 4 parts of a mobile phone and their functions

Part	Function
Flammable	
Corrosive	
Toxic	
Fumes	

Compare your answers with what you read in the following section.

A conventional mobile phone is made up of many parts. Table 2 below explains the functions of the main parts.

Table 2: Parts of a mobile phone and their functions

Parts of a mobile cell phone	Functions
Keypad	Used for inputting or entering data into the phone. It is connected directly to the CPU
Ear piece	Converts the electric signal to a sound signal
Mouth piece	Transmits sound from one phone to another
Battery	Source of power supply to a mobile phone
Power switch	Switches the phone on and off

Power IC	It takes power from the battery and supplies to all other parts of a mobile phone
Oscillator	It creates frequency during outgoing calls
Screen or display	Displays data. It is connected to the CPU to receive following signals : LCD Data Signal, LCD Reset Signal, LCD WR Signal, LCD RD Signal, LCD FLM Signal, LCD HSYN Signal etc.
Flash IC	Stores the software and other programs installed in the mobile phone
Charging IC	Takes the current from the charger and charges the battery
CPU	Controls all sections of a mobile phone
Antenna	Receives and transmit radio frequencies and helps the phone to connect to the cellular network

Figure 5 below shows a printed circuit board (PCB) of a mobile phone showing the different internal parts. As you can see from this diagram the PCB is divided into two parts, the network section and the power section. The network section controls the incoming and outgoing phone calls, while the power section controls the memory and power related functions of the phone.

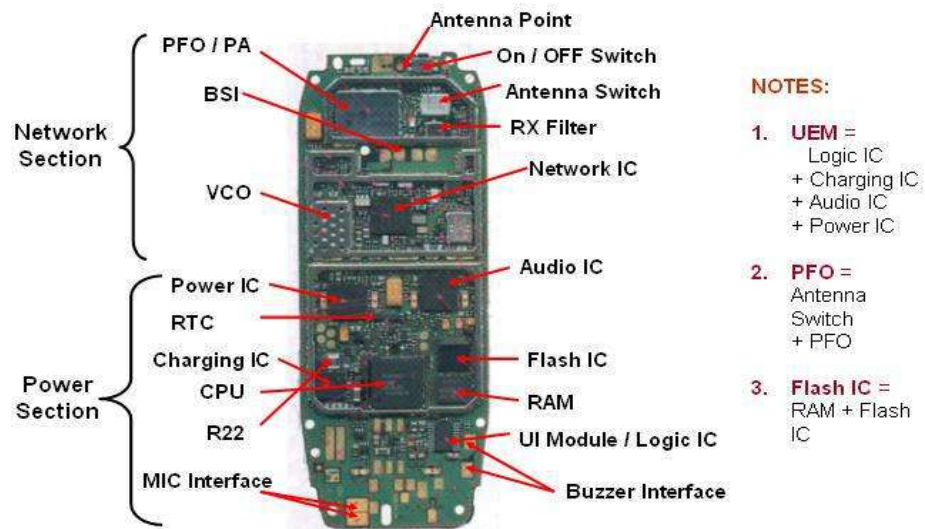


Figure 5: Parts of a mobile phone

We hope you now know the different parts of a mobile phone and their functions. Make sure that you learn them well and are able to locate them easily before you move on to the next section. Let us now look at the tools that you need to repair mobile phones.



Topic 4: _____

Mobile Phone Repair Tools

There are hundreds of tools for mobile phone repair available in the market. It is important to select the best tool that enables you to repair the phone easily and comfortably. Before you continue reading complete the following activity.



Activity 4:

Factors to consider when choosing mobile repair tools (5 minutes)

List three factors that you would you consider when choosing mobile phone repair tools?

1. _____
2. _____
3. _____

Now compare your factors with those we discuss in the following section.

Factors to Consider When Choosing Mobile Phone Repair tools

When selecting tools and equipment for repairing mobile cell phones, you should consider the following factors:

1. Cost
2. Brand
3. Quality/ Durability
4. Availability
5. Suitability

Tools for Mobile Phone Repair

Below are the tools and equipment needed for mobile phone repair.

1. **Soldering Iron:** Used to solder small components like capacitor, resistor, diode, transistor, regulator, speaker, microphone, display etc. A 50 watt soldering iron is good enough for most mobile phones repairing job.



Figure 6: Soldering iron

2. **PCB Holder / PCB Stand** (Printed Circuit Board): PCB is used to hold the PCB of a mobile phone while soldering or repairing. It holds the PCB very strongly and doesn't allow it to move thus helping in repairing.



Figure 7: PCB holder

3. **Solder Wire:** used to solder electronic components, ICs or jumpers. The composition of most solder wire is Tin / Lead in the ratio 60:40 or 63:37.



Figure 8: Solder wire

4. **Thinner or PCB Cleaner:** Thinner or PCB cleaner is used to clean the PCB of a mobile phone. The most common PCB cleaner used in mobile phone repairing is IPA or Isopropyl Alcohol. It is important to buy only good quality PCB cleaner as poor quality PCB cleaners can damage the system board.



Figure 9: Thinner or PCB cleaner

5. **Jumper Wire:** This is a thin laminated or coated copper wire used to jumper from one point to another on the track of a mobile phone during repair.



Figure 10: Jumper wire

6. **Point Cutter:** It is used for cutting



Figure 11: Point cutter

7. **Blade Cutter:** This is used to remove lamination from jumper wire. It can also be used for several other purposes.



Figure 12: Blade cutter

8. **Nose Cutter:** this is used for cutting.



Figure 13: Nose Cutter

9. **Precision Screwdriver:** It is used to remove and tighten screws while assembling and disassembling a mobile phone. Precision screwdrivers of sizes T4, T5, T6 and Torx are good for most mobile repairing job.



Figure 14: Precision screwdriver

10. **Tweezers:** These are needed to hold electronic components, ICs, jumper wire etc. while soldering and Desoldering.



Figure 15: Tweezers

11. **Brush:** These are used for cleaning the PCB of a mobile phone when it is being repaired. It is important to buy only ESD-Safe cleaning brushes.



Figure 16: Brushes

12. **Multimeter:** an electronic measuring device that has the ability to measure voltage, current and resistance. It is used to test and check the readings of various parts and components of a mobile phone.



Figure 17: Digital Multimeter (Source: commons.wikipedia.org)

13. **Hot Air Blower:** It is also called SMD (Surface Mount Device) rework system and SMD repair system. It has control to regulate or manage temperature and flow or hot air. Always buy a good quality ESD-Safe hot air blower.



Figure 18: Hot air blower

14. **Battery Booster:** It is used to boost the power of battery of a mobile phone.



Figure 19: Battery booster

15. **Screwdriver Kit:** It has several screwdrivers of different shapes and sizes to disassemble and assemble a mobile phone.



Figure 20: Assorted screwdrivers

16. **Microscope:** It is used to see a magnified view of PCB or electronic components. These are available in different zoom options. Many microscopes can also be connected to a computer or a monitor.



Figure 21: Microscope

17. **Test JIG Box:** This device is used to diagnose and find fault or problem in a mobile phone. It helps the mobile phone to work and function normally outside its case. This helps to test and check voltage and other test points on the PCB. In simple words it helps the mobile phone to work without battery.



Figure 22: Test JIG box

18. **Battery Tester:** This device is used to test and analyze the status or condition of the battery of a mobile cell phone.



Figure 23: Battery tester

19. **Cleaning Sponge:** this is used to clean the tip of soldering iron while soldering.



Figure 24: Cleaning sponge

20. **Solder Paste:** The solder paste is a low melting metal alloy used to join together metal work pieces. It has a lower melting point than the metal work pieces.



Figure 25: Solder paste

21. **LCD Tester:** Used to check whether the LCD screen of a mobile phone is faulty or not.



Figure 26: LCD tester

You now know the main tools that are used to repair a mobile phone. In the next topic we shall discuss how to disassemble and assemble a mobile phone.