HARDWARE AND NETWORKING SERVICE

LEVEL-I

Based on March 2022, Curriculum Version 1



Module Title: - Identifying and Using Network Hand Tools

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Addis Ababa, Ethiopia

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Ministry of Labor and Skills

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Acknowledgment

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Acronym

OHS	Operating system
LAN	Local area network
WAN	Wide area network
MAN	Metropolitan Network
PAN	Personal area network
UTP	Unshielded twisted-pair

Introduction to the Module

This module is designed to meet the industry requirement under maintaining equipment, software inventories and documentation occupational standard, particularly for the unit of competency

This module covers the units:

- Basic Network Overview
- Identification and Uses of basic Network hand-tools
- Work with others

Learning Objective of the Module

- Know Basic Network Overview
- Identify and Use basic Network hand-tools
- Apply Work with others

Module Instruction

For effective use this modules trainees are expected to follow the following module instruction:

1. Read the information written in each unit
2. Accomplish the Self-checks at the end of each unit
3. See the operation sheet at the end of each unit
4. Do the operation sheet at the end of each unit
5. Read the identified reference book for Examples and exercise

Unit one: Basic Network overview

This Module is developed to provide you the necessary information regarding the following content coverage and topics:

- Introduction of network
- Identification of types of network
- Identification of forms of Ethernet Cables
  - Straight Through
  - Crossover
  - Rollover

This Module will also assist you to attain the learning outcomes stated in the above. Specifically, upon completion of this Module, you will be able to:

- Introduce network
- Identify types of Network
- Identify forms of Ethernet Cables
  - Straight through
  - Crossover
  - Rollover

1.1 Introducing network

A network is a group of computers that are connected to share hardware and software. The group can be as small and simple as two computers and a printer set up in a house or as large and complex as thousands of computers and hundreds of printers and other devices. In order for the computers to communicate with each other, they must share three elements: a **network media and topology**, a **protocol**, and a **software client or service**

- **Topology** is refers to the arrangement or physical layout of computers, cables, and other components on the network. "**Topology"** is the standard term that most network professionals use when they refer to the network's basic design.
- **Protocol** is rule by which two or more devices interconnect each other on a network
- **Network media** refers to the communication channels used to interconnect nodes on a computer network.

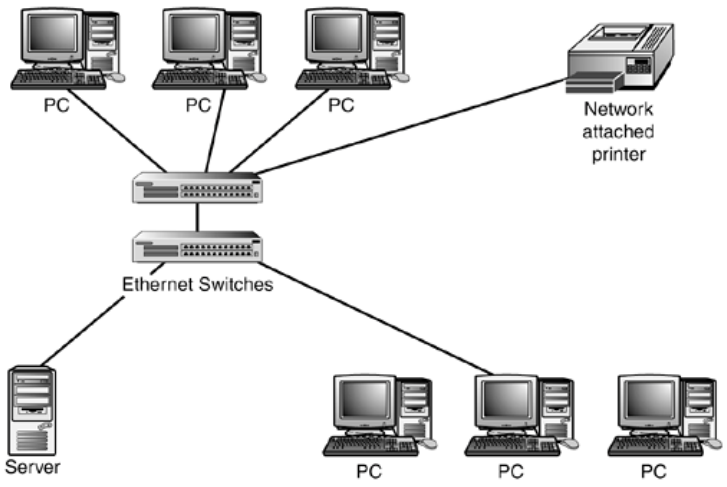


Fig.1.1.1 Networks of computers

1.2 Identifying Types of Network

A computer network is a group of computers linked to each other that enables the computer to communicate with another computer and share their resources, data, and applications. A computer network can be categorized by their size. A computer network is mainly of four types

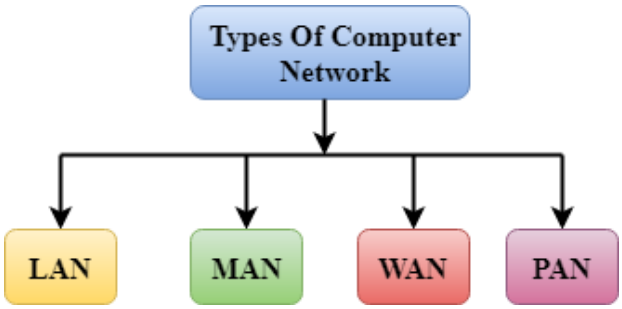


Fig.1.2.1 Types of network

- LAN(Local Area Network)
- PAN(Personal Area Network)
- MAN(Metropolitan Area Network)
- WAN(Wide Area Network)

LAN(Local Area Network)

- Local Area Network is a group of computers connected to each other in a small area such as building, office.
- LAN is used for connecting two or more personal computers through a communication medium such as twisted pair, coaxial cable, etc.
- It is less costly as it is built with inexpensive hardware such as hubs, network adapters, and ethernet cables.
- The data is transferred at an extremely faster rate in Local Area Network.
- Local Area Network provides higher security.

Fig.1.2.2 Local area network



PAN(Personal Area Network)

- Personal Area Network is a network arranged within an individual person, typically within a range of 10 meters.
- Personal Area Network is used for connecting the computer devices of personal use is known as Personal Area Network.
- **Thomas Zimmerman** was the first research scientist to bring the idea of the Personal Area Network.
- Personal Area Network covers an area of **30 feet**.
- Personal computer devices that are used to develop the personal area network are the laptop, mobile phones, media player and play stations.



Fig.1.2.3 Personal area network

There are two types of Personal Area Network:

- Wired Personal Area Network
- Wireless Personal Area Network

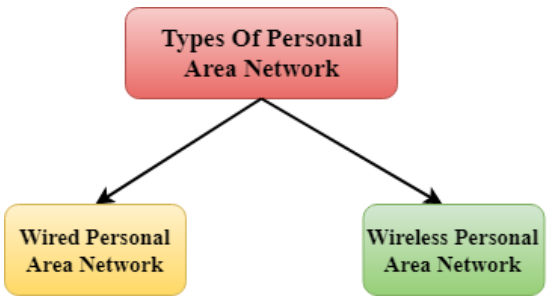


Fig.1.2.4 Types of personal area network

Wireless Personal Area Network: Wireless Personal Area Network is developed by simply using wireless technologies such as WiFi, Bluetooth. It is a low range network.

Wired Personal Area Network: Wired Personal Area Network is created by using the USB.

Examples Of Personal Area Network:

- **Body Area Network:** Body Area Network is a network that moves with a person. **For example**, a mobile network moves with a person. Suppose a person establishes a network connection and then creates a connection with another device to share the information.
- **Offline Network:** An offline network can be created inside the home, so it is also known as a **home network**. A home network is designed to integrate the devices such as printers, computer, television but they are not connected to the internet.
- **Small Home Office:** It is used to connect a variety of devices to the internet and to a corporate network using a VPN

MAN (Metropolitan Area Network)

- A metropolitan area network is a network that covers a larger geographic area by interconnecting a different LAN to form a larger network.
- Government agencies use MAN to connect to the citizens and private industries.
- In MAN, various LANs are connected to each other through a telephone exchange line.
- The most widely used protocols in MAN are RS-232, Frame Relay, ATM, ISDN, OC-3, ADSL, etc.
- It has a higher range than Local Area Network(LAN).

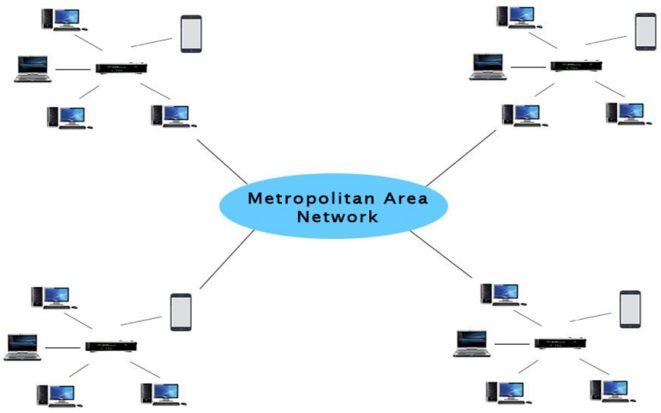


Fig 1.2.5 Metropolitan area network

Uses of Metropolitan Area Network:

- MAN is used in communication between the banks in a city.
- It can be used in an Airline Reservation.
- It can be used in a college within a city.
- It can also be used for communication in the military.

WAN(Wide Area Network)

- A Wide Area Network is a network that extends over a large geographical area such as states or countries.
- A Wide Area Network is quite bigger network than the LAN.
- A Wide Area Network is not limited to a single location, but it spans over a large geographical area through a telephone line, fibre optic cable or satellite links.
- The internet is one of the biggest WAN in the world.
- A Wide Area Network is widely used in the field of Business, government, and education.

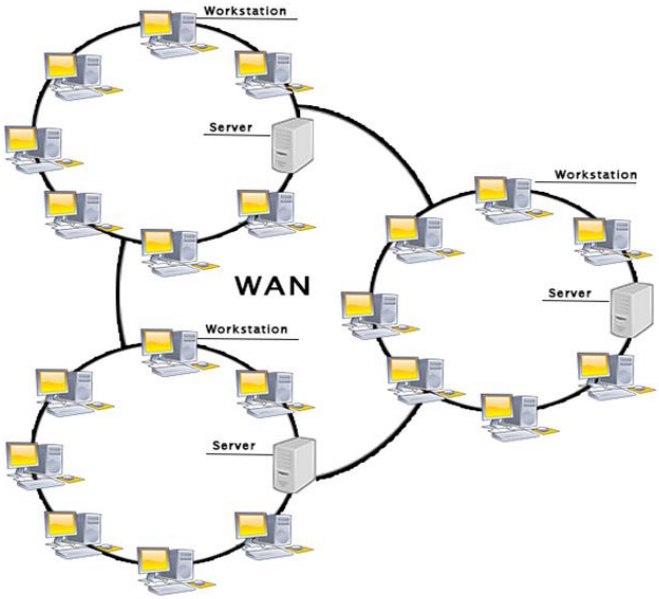


Fig.1.2.6 Wide area network

Examples of Wide Area Network:

- **Mobile Broadband:** A 4G network is widely used across a region or country.

- **Last mile:** A telecom company is used to provide the internet services to the customers in hundreds of cities by connecting their home with fiber.
- **Private network:** A bank provides a private network that connects the 44 offices. This network is made by using the telephone leased line provided by the telecom company.

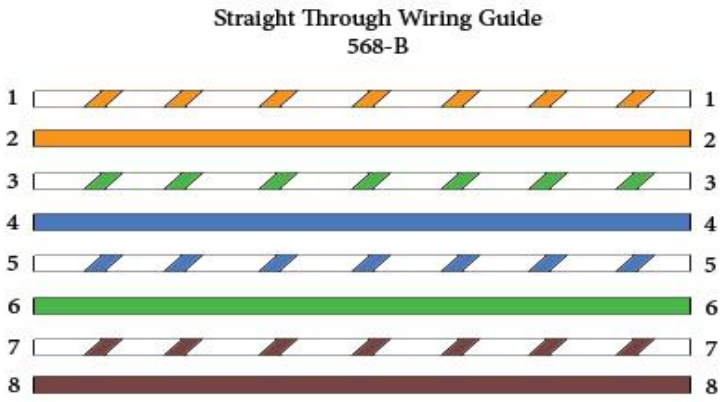
1.3 Identifying Forms of Ethernet Cables

When talking about cable pinouts, we often get questions as to the difference in Straight-through, Crossover, and Rollover wiring of cables and the intended use for each type of cable. These terms are referring to the way the cables are wired (which pin on one end is connected to which pin on the other end). Below we will try to shed some light on this commonly confused subject.

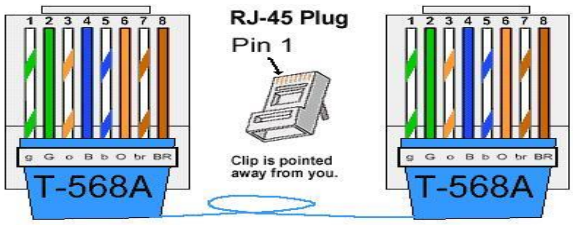
1.3.1 Straight through

Straight-Through refers to cables that have the pin assignments on each end of the cable. In other words, Pin 1 connector A goes to Pin 1 on connector B, Pin 2 to Pin 2, etc. Straight-Through wired cables are most commonly used to connect a host to a client. When we talk about cat5e patch cables, the Straight-Through wired cat5e patch cable is used to connect computers, printers, and other network client devices to the router switch or hub (the host device in this instance).

Wire pins for cable end A	**Wire pins for cable end B**
Pin 1	Pin 1
Pin 2	Pin 2
Pin 3	Pin 3
Pin 4	Pin 4
Pin 5	Pin 5
Pin 6	Pin 6
Pin 7	Pin 7
Pin 8	Pin 8



Wire pins for cable end A	Wire pins for cable end B
1:White Orange	1:White Orange
2:Orange	2:Orange
3:White Green	3:White Green
4: Blue	4: Blue
5: White Blue	5: White Blue
6:Green	6:Green
7:White Brown	7:White Brown
8:Brown	8:Brown

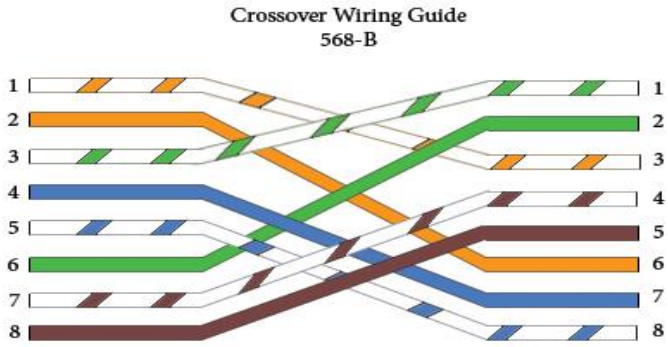


1.3.2 Crossover Wired Cables

Crossover wired cables (commonly called crossover cables) are very much like Straight-Through cables with the exception that TX and RX lines are crossed (they are at opposite positions on either end of the cable. Using the 568-B standard as an example below, you will see that Pin 1 on connector A goes to Pin 3 on connector B. Pin 2 on connector A goes to Pin 6 on connector B, etc. Crossover cables are most commonly used to connect two hosts directly. Examples would be connecting a computer directly to another computer, connecting a switch directly to another switch, or connecting a router to a router. Note: While in the past, when connecting two host devices directly, a crossover cable was required. Nowadays, most devices have auto-sensing technology that detects the cable and device and crosses pairs when needed.

Wire pins for cable end A	Wire pins for cable end B
Pin 1	Pin 3
Pin 2	Pin 6
Pin 3	Pin 1

Pin 4	Pin 4
Pin 5	Pin 5
Pin 6	Pin 2
Pin 7	Pin 7
Pin 8	Pin 8



Wire pins for cable end A

1:White Orange
2:Orange
3:White Green
4: Blue
5: White Blue
6:Green
7:White Brown
8:Brown

Wire pins for cable end B

1:White Green
2: Green
3: White Orange
4: Blue
5: White Blue
6:Orange
7:White Brown
8:Brown

1.3.3 Rollover Wired Cables

Rollover wired cables, most commonly called rollover cables, have opposite Pin assignments on each end of the cable or, in other words, it is "rolled over." Pin 1 of connector A would be connected to Pin 8 of connector B. Pin 2 of connector A would be connected to Pin 7 of connector B and so on. Rollover cables, sometimes referred to as Yost cables are most commonly used to connect to a device's console port to make programming changes to the device. Unlike crossover and straight-wired cables, rollover cables are not intended to carry data but instead create an interface with the device.

Wire pins for cable end A	Wire pins for cable end B
Pin 1	Pin 8
Pin 2	Pin 7
Pin 3	Pin 6
Pin 4	Pin 5
Pin 5	Pin 4
Pin 6	Pin 3
Pin 7	Pin 2
Pin 8	Pin 1

Crimping Rj-45 on UTP cables

1. Prepare UTP, RJ45 jack and crimping tool.
2. Cut the rubber cover of the UTP cable by using the crimping tool and twisting it, be sure not to cut the cable lines.
3. Arrange the pairs according to the color standard for a cross over cable
4. After arranging make sure that the edges of the cables are straight and by cutting it using the crimping tool.
5. Insert the cables to the RJ45 jack and make sure that it is arranged according to the standard. Double check the cable before crimping.

Insert the rubber/plastic insulator of the UTP to the RJ45 jack and include it in crimping for better connection and added protection to the cable

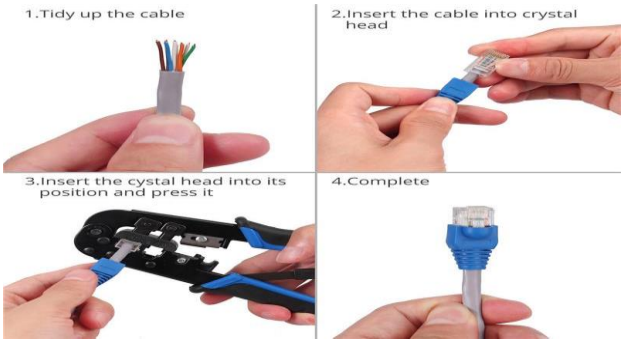


Fig 1.3.1 Crimping a network cable

Self-check

I Explain, define and or Mention

1. What is a computer network
2. What are the different types of computer network, explain
3. Topology
4. If you connect your mobile with your computer, what will be the possible network type it will be grouped

II True or False

5. In Cross over cabling pin number three of one end wire cable will be mapped to pin number three of the other cable end wire
6. In straight through cabling, all the arrangement of pin wires(1 to 8) one cable end will be mapped to pin wires of number (1 to 8) of the other cable end consequently

III Fill the blank space

7. _____is a rule used to interconnect devices through a network
8. _____forms of an Ethernet cable that is used to connect a computer to other computer

Operation Sheet

Operation title: Crimp a crossover cable

Purpose: Crimping a crossover cable

Instruction: Using the steps below Crimp a crossover cable using a UTP cable

- **Steps to crimp a crossover cable**
    6. Prepare UTP, RJ45 jack and crimping tool.
    7. Cut the rubber cover of the UTP cable by using the crimping tool and twisting it, be sure not to cut the cable lines.
    8. Arrange the pairs according to the color standard for a cross over cable
    9. After arranging make sure that the edges of the cables are straight and by cutting it using the crimping tool.
    10. Insert the cables to the RJ45 jack and make sure that it is arranged according to the standard. Double check the cable before crimping.

Insert the rubber/plastic insulator of the UTP to the RJ45 jack and include it in crimping for better connection and added protection to the cable

- **Tools and requirement:**

1. RJ-45,
2. Wire Cutter,
3. Network Crimper.
4. UTP cable

- **Quality Criteria:** there should be no error on testing its functionality using a network tester
- **Precautions:** carful while cutting wires

Lap Test

Name: _____ Date: _____
Time started: _____ Time finished: _____

Instructions: You are required to perform the following individually with the presence of your teacher.

You are expected to make the following cable forms and you are expected to make at a maximum of trial on two times in 40 minutes

1. A cross over cable
2. A straight through cable
3. A rollover cable

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Unit two: Identification and Uses of basic Network hand-tools

This Module is developed to provide you the necessary information regarding the following content coverage and topics:

- Use of Network Hand Tools
    - Identification of Appropriate Network Hand Tools, Power Tools and functions
- Review OHS Hazards and Factors
- Work with others
    - Seek Assistance from Workgroup
    - Provide Support to Team Members
    - Share Relevant Information

This Module will also assist you to attain the learning outcomes stated in the above. Specifically, upon completion of this Module, you will be able to:

- Use Network Hand Tools
    - Identify Appropriate Network Hand Tools, Power Tools and functions
- Review OHS Hazards and Factors
- Work with others
    - Seek Assistance from Workgroup
    - Provide Support to Team Members
    - Share Relevant Information

2.1 Use Network Hand Tools

Hand tools are the essential allies of the networking professionals. If you have a wide range of insulated tools, you will be able to rest easy in the knowledge that no jobs will be too difficult. Here are a few of the essential insulated hand tools you need in the ultimate networking toolkit:

- A wire stripper/wire cutter
- A high-leverage cable cutter
- Pump pliers
- Diagonal cutting pliers
- High-leverage side-cutting pliers
- Standard long-nose pliers (both side-cutting and skinning)
- A skinning knife
- Crimping/cutting tools



Fig.2.1 Network toolkit

This tool helps you efficiently connect wiring in patch panels and/or keystones. Once you add this item to your toolkit, you will be amazed that you were ever able to go without it. While all of these tools make life easier for a networking professional, it can be difficult to amass a collection of quality hand tools one by one. For high-end networking work, one of the best choices for professionals is to outfit themselves with a state of the art network installation tool kit and/or a high-quality general-purpose toolkit. These kits make it easy to ensure you are ready for the job whenever a hand tool is needed. That said, with all these hand tools, you will need a quality bag or tool case to transport your hand tools.

2.1.1 Identify Appropriate Network Hand Tools, Power Tools and functions

- **Testing Equipment**

In addition to hand tools and carrying equipment, you will need the critical testing equipment that ensures network reliability. To start, add a quality network cable tester to your suite of networking tools. An effective network cable tester like this one helps you differentiate between straight-through, crossover and reverse cables with a helpful LED light configuration. More broadly, the network cable tester helps you test for:

- ✓ Continuity
- ✓ Short Circuits
- ✓ Crosstalk and Crossed Pairs

Detecting mis-wires, opens, split pairs and shorts becomes easier thanks to tools like these, making the life of a networking pro much more efficient. Another piece of testing equipment worth considering is a network optimized psiber tone and probe set. This tool makes it easy to trace inactive and active wiring to a patch panel or hubs.

- **Network tester**

A network tester is a device used to test the strength and connectivity of a particular type of cable or other wired assemblies. There are many different types of network tester . Each of them can test a specific type of cable or wire (some can test different types of cables or wires). A network tester can test whether a cable or wire is set up properly, connected, correctly, and the communication strength between the source and destination. The picture is an example of a network tester from TRENDnet.



Fig 2.1.1 Network tester

- **A toner probe**

A toner probe is used to trace network cables between two different locations. For example, if you have 50 cables going from an office to a wiring closet, you sometimes need to identify both ends of the same cable. You can connect the component that creates the tone to one end of the wire in the office. Next, you go to the wiring closet and begin touching the speaker probe to different wires. When you hear the tone, you have found the wire.



Fig. 2.1.1.2 tonner probe

- **Crimper**

A crimping tool is a device used to conjoin two pieces of metal by deforming one or both of them to hold each other. The result of the tool's work is called a crimp. This tool is used to attach the connectors to the cable. Typically, this tool also includes a wire-cutter and wire-stripper. So if you buy a crimp tool, you don't have to buy a wire-cutter and wire-stripper separately. An example of crimping is affixing a connector to the end of a cable. For instance, network cables and phone cables are created using a crimping tool (shown below) to join RJ-45 and RJ-11 connectors to both ends of phone or Cat 5 cable. To use this crimping tool, each wire is first placed into the connector. Then the connector with wires is placed into the crimping tool, and the handles are squeezed together. Crimping punctures the plastic connector and holds each of the wires, allowing data to transmit through the connector.



Fig. 2.1.1.3 network crimper

- **Wire Cutter**

To cut the network cable of the required length from the bundle, you can use any standard wire cutter tool or can use a wire cutter tool that is specially designed for the twisted-pair cable. A twisted-pair wire cutter usually includes additional blades for stripping the wire.

- **Wire Stripper**

This tool is used to remove the outer and inner jackets of the network cable. Typically, you do not need to purchase this tool separately as all standard twisted-pair wire cutters are equipped with wire-strippers.The following image shows two twisted-pair wire cutter tools equipped with wire-strippers.



Fig. 2.1.1.4 wire cutter

- **Power tool**

A power tool is a tool that is actuated by an additional power source and mechanism other than the solely manual labor used with hand tools. The most common types of power tools use electric motors. Some of the functions given by power tools are: grinding, drilling, air pressure, joining and fixing... so on



Fig. 2.1.1.5 Power tool

- **Multimeter**

A digital multimeter is a test tool used to measure two or more electrical values—principally voltage (volts), current (amps) and resistance (ohms). It is a standard diagnostic tool for technicians in the electrical/electronic industries.



Fig. 2.1.1.6 Multimeter

- **Punch down tool**

It is also called a **krone tool**, is a hand tool used to connect telecommunications and network wires to a patch panel, punch down block, keystone module, or surface mount box. The "punch down" part of the name comes from punching a wire into place using an impact action. It consists of a handle, a spring mechanism, and a removable slotted blade when the punch down tool connects a wire, the blade cuts off the excess wire.



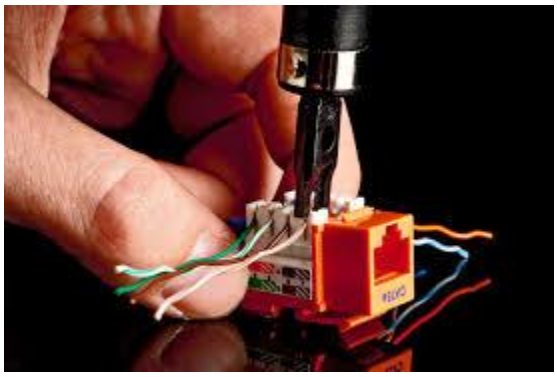


Fig. 2.1.1.7 tonner probe

2.2 Reviewing OHS Hazards and Factors

Information Technology to provide employees with a healthy and safe place of employment, generally free from recognized hazards that cause or are likely to cause death or serious injury. Each DoIT location will entail sufficient safety devices to protect employee safety and health. All employees of DoIT are obligated to ensure

that notification is given to the Senior Administrative Officer, or the Directors, of any unsafe or hazardous IT related conditions in the workplace.

General precautions

The following general precautions are required of the employee(s): Overall Operation

- Value your life before personal possessions.
- Cooperate with your fellow employees. Show them the safe way to perform work.
- Do your work safely. Do not take chances which could result in personal injury.
- Familiarize yourself with the duties and hazards of your job. If you have any questions, discuss them with your Supervisor.
- Ignorance is no excuse for an accident.
- If you have questions about how to do your job, you should ask your Supervisor.
- Do not distract the attention of fellow employees while working, or operating any equipment.
- Use the correct tools, or equipment, when performing any job.
- All tools and equipment shall be visually inspected before use.
- Chairs, boxes and other similar unstable devices shall not be used as working platforms.
- Do not attempt to lift or carry anything too heavy or bulky to be handled safely by one person.
- Lift Trucks and other devices for handling heavy loads should be used wherever possible to reduce to a minimum the manual handling of materials.
- Unauthorized personnel are not allowed in the secured or work areas.

Accidents and injuries

All injuries must be reported to your Supervisor as soon as possible.

- Report unsafe conditions or practices immediately.
- An employee injured on the job may be given First Aid. If the injury is serious, notify your Supervisor immediately.
- If burned by chemicals or acids, wash with water immediately (if appropriate) to prevent quick deep burns. Flush the burn generously. Notify your Supervisor immediately.

Fire procedures fire prevention

- All employees must know where the fire extinguishers are located, and how to properly use them.
- Fire extinguishers and First Aid Stations should be clearly marked with signs.
- Never block access to Exits, fire extinguishers, electric switches and panels.

- Do not block or stack material against doors, which would prevent them from operating properly in event of a fire.
- Do not use flammable material near electrical panels, switches, lift trucks or any electrical equipment.
- Make sure all equipment is properly grounded where needed.
- Fire extinguishers must be inspected regularly.
- Report to your Supervisor any defect in electrical, fire prevention or material handling equipment.
- NO flammable materials are to be placed around an exit door way.

2.3 Work with others

In the workplace, everyone interacts with each other. This is how society organizes itself and communicates together at work. These relationships are valuable for the opportunities they create to improve performance of individuals, as well as benefiting them, by creating a more useful and interesting place to work.

Each person in the team has a responsibility and a vested interest in making these relationships work, for their mutual benefit.

In practice, 'responsibility' is all about doing your bit (and maybe a little more) to oil the wheels of the relationships you have with all of your colleagues, at whatever level of hierarchy they might be, such that everyone is a winner.

There are five critical activities that anyone creating a workplace relationship needs to be aware of - and be prepared to put into practice. There are five critical activities that anyone creating a workplace relationship needs to be aware of - and be prepared to put into practice.

- **Show Commitment**

  By being onside and decided to make the difference, whatever the history, you are starting a process to build relationships, even if it means you have to rethink your position as well a bit.

- **Be Interested in Others**

  You'll build relationships faster if you dump talking all about yourself and make sure you ask questions that will help you get to know people better. Yet, this isn't actually the point. It's that you are showing that you are interested that counts.

- **Create Trust**

Following through with what you say you will do; being as open and honest as possible; giving and accepting feedback, as well as showing confidentiality and discretion, are all tiny and still vital tactics to adopt when building new and maintaining existing relationships.

- **Smile like you mean it.**
  Greet people when you cross paths in the halls. Make small talk in the elevator and the kitchen. Offer advice--or at least sympathy -- when the printer jams. Small gestures like this seem inconsequential, but go a long way toward establishing you as a friendly, approachable person, which makes your coworkers much more likely to extend friendship to you in return.

- **Make lunch time social time.**
  If your department has a scheduled lunch break, tag along with a group, or ask one of your office neighbors to a restaurant you enjoy. Eat together.
- **Know your limits.**
  Those without strong social butterfly inclinations should not feel left out of the fun. Spend your break time in the office social hub--the break room or the coffee shop across the street--and have a chat with whomever comes in. Pop into other people's cubicles on your walk to the supply closet, just to say hello. You certainly don't have to throw parties to make a few friends on the job.

2.3.1 Seek assistance from workgroup

Professionals can support their teams through encouraging behavior and practices. Providing moral and professional support to your team can help your company reach its goals, and adopting supportive professional practices can improve the work quality of you and your team. In this article, we discuss the importance of supporting your team and share some tips on how to show your support. Supporting your team at work can help boost morale, increase productivity and create a happier and healthier work culture. Professionals who feel supported by their colleagues often are more confident in their abilities and can return the support to others, which can be beneficial to the entire company. Any employee can choose to support their team, and it can be especially important for team leads and managers to create a supportive work environment for everyone.

You can follow these 15 tips to achieve a more productive and satisfactory work environment:

- **Communicate often**
  Establishing reliable methods of communication can help coworkers connect and clarify expectations. Consider endorsing a primary communication method, such as a group chat or email and also encourage

face-to-face communication. Another way to ensure communication is to host meetings for everyone to express ideas, concerns and update others on the status of their work. When communicating with coworkers, it's important to establish a sense of trust. Try not to share sensitive information another coworker told you and try to respond to messages within an appropriate amount of time.

- **Be available to answer questions**

  Consider letting your coworkers know they can go to you with questions about their job. Though it can always be helpful to provide answers, try to only offer advice on your area of expertise. This can help ensure you give your coworkers accurate and helpful solutions to their problems. If you are unsure how to help, it's beneficial to direct your coworker to someone else.
- Establishing yourself as a professional who your peers can ask for help can establish a sense of trust and ease their concerns. It also can open a line of communication that allows you to go to others for help. This can help ensure all professionals are comfortable asking for help within your company, which can lead to a healthier work environment.

- **Provide learning opportunities**

  Allow your coworkers to strengthen their skills by teaching them how to do something or guiding them through a new task. Providing these learning opportunities can challenge professionals to develop their skills and encourage them to strive for success.

  Consider fostering interest an employee has in learning a new skill for their position. For example, if you work in a kitchen and the professional who is usually responsible for preparing the food ingredients becomes interested in cooking the meals as well, try to create opportunities for them to do so. Allowing professionals to pursue their interests in this way can lead to developing highly skilled employees for your company.

- **Encourage coworkers to assume responsibilities**

  If one of your team members expresses their intent to level up in the company or assume more primary duties, try to encourage their desire. This can lead to higher chances of career growth within your team and can allow your team members to earn promotions. Assuming more responsibilities can also help your team become more productive and meet company goals. You can support your coworker by expressing confidence in their abilities and helping them achieve their new professional goal.

- **Allow coworkers to express their ideas**

  Try to create a workspace that celebrates innovative ideas. You can help make others feel more valued as an employee by giving them the chance to voice their ideas. It can lead to company progress and the development of more efficient practices.

  To support your team by allowing them to share ideas, consider planning meetings for brainstorming or directly ask for ideas. It can be best to establish open methods of communication specifically to troubleshoot problems as a group. Consider starting a chat over email or other applications to ask for your team's input and hear their ideas.

- **Be open-minded**

  When attempting to support your team, it's important to be inclusive of your attempts. Try to provide support to all of your team members. Being open-minded at work may mean accepting unconventional ideas, acknowledging and celebrating personal differences and encouraging everyone to take part in work activities.

  It can also be helpful to be inclusive in your language to show support for all of your coworkers. For example, call attention to holidays you do not observe in order to wish a nice celebration to those who do. Though it's a small gesture, your team members may appreciate it and feel more respected at work.

- **Prioritize tasks**

  Though your team is likely working toward the same goal, many of your coworkers may have different tasks than you. Because of this, it is possible a coworker has a task of more importance than others. Knowing how to prioritize tasks can lead to a more productive work environment. If you notice a coworker is struggling to complete a task that has more importance than the one you are working on, consider asking if they would like help. This can help everyone achieve company goals in a timely manner.

  For example, if you are a florist and your coworker is working to arrange a set of bouquets that are scheduled to be picked up soon, it can be helpful if you offer assistance. Even though you are not personally responsible for the task, it's beneficial to the company to ensure the bouquets are ready on time. It also can ease your coworker's mind and show your support for them.

- **Offer praise and feedback**

Consider offering consistent praise and feedback to your team members. This can help build their self-esteem and motivate them to continue performing well. Recognizing your coworkers' talents can also set a standard for positive work culture and encourage others to do the same.

- **Develop your emotional intelligence skills**

  Emotional intelligence skills can help you recognize and manage your own and others' emotions. This skill is very helpful when trying to support your team because it can allow you to regulate your emotions at work and encourage others to do the same. This may help maintain a peaceful and respectful work environment, which can lead to increased focus and productivity.

  Recognizing other's thoughts and feelings can help you identify which of your team members might need help and also can lead to a deeper understanding of each other. Try to reach out to your team members who may not regulate their emotions well to understand their motivations and help them develop this soft skill.

- **Take breaks**

  Taking breaks with your coworkers can provide a time for much-needed relaxation and socialization. During breaks, try to talk about non-work-related topics to help bond with your coworkers. If applicable, consider inviting a coworker on a quick walk around the company campus or to a nearby restaurant or cafe. This can help show your team member you value them as a person as much as you value them as a professional and coworker.

2.3.2 Provide Support to Team Members

Why is it important to help others at work

Helping your colleagues at work is important to maintaining a stable workplace. Some other benefits to supporting others at work include:

Morale: Kindness in offering help when needed can improve morale.
Support: When you support your colleagues, they may be more likely to support you.
Leadership: Helping others is an important quality for developing leadership skills.
Health: A happy work environment can reduce stress and improve your health.
Productivity: When colleagues support each other and work as a team, they are often able to work more

Tips for helping and supporting colleagues at work

Knowing when and how to offer support to colleagues at work can be a challenge, but helping others encourages a collaborative work environment. Here are tips for helping and supporting your colleagues:

1. Communicate often

Communicating with colleagues helps build a relationship and can inspire teamwork. Here are ways to establish good communication:

- Greet coworkers: Say hello to your colleagues when you see them. Make an effort to acknowledge them.
- Check in: Ask how your colleagues are feeling and how their day is going.
- Listen: Pay attention to what they say.
- Make eye contact: Maintaining eye contact is important for respectful communication.
- Show respect: Be respectful of boundaries and be conscious of how you behave when communicating.

Consider establishing a channel or method by which communication is easy and comfortable for all team members such as a social media group, a work app for an employee chat or you could schedule weekly meetings.

Example You can install a team app on every work computer to provide easy contact among all employees and encourage colleagues to share about their work progress.

2. Recognize their challenges

Be aware of your surroundings at work and try to notice what may cause a colleague to struggle. You can ask how you can be of help when you see they are dealing with a challenge. Use your own experience to help recognize when others are struggling. For example, when there is a new colleague starting at the company where you work, consider what challenged you when you first started working there and see if you can offer help with orientation tasks.

Example: If you notice a colleague is stressed and working hard to meet a deadline, stop by their desk and ask if there is anything you can do to help. Listening to their concerns can show empathy and help them feel less stressed.

3. Volunteer your time

If you notice a colleague needs help or has a large workload, offer to help them complete some tasks.

Sometimes offering moral support is enough if you do not have time or are not permitted to help with their work tasks.

Example: Your colleague may be responsible for contacting clients. If your company policy does not allow you to speak with the clients in your assigned job role, you can offer support to your colleague by bringing a coffee to their desk while they make calls.

5. Give advice

Giving advice is a great way to offer support to your colleagues at work. Draw on your experience with the company and from your own job duties to advise other team members. Use these tips to help guide your advice: Ask. Before offering advice, be sure it is something your colleague wants.

- Be kind. Try not to judge your colleague, and give advice that is kind and helpful.
- Be honest. Honesty helps ensure that the advice you give is helpful.
- Listen. Hear what your colleague has to say and pay attention to how they respond to your advice.
- Collaborate. When giving advice, try to find a solution together to fix the colleague's problem.

Constructive criticism is a form of advice appropriate and often encouraged at work. Providing colleagues with useful feedback on their work helps them to improve and may increase productivity at work.
Example: If there is a new colleague starting at the company, offer to give them an office tour and share your tips on how to be most efficient while at work.

5. Build a relationship

Building a relationship with your colleagues at work can prepare you to support each other when needed. Take the time to learn about your colleagues' interests, since these can be topics to talk about when establishing daily communication. Be aware of professional boundaries, but try to be friendly with all of your colleagues. This can help establish a collaborative environment to work in.
Example: Establish a weekly email for featuring a colleague where they can share their hobbies with other colleagues.

6. Offer praise

Acknowledging achievements can show colleagues that you care. You can praise your colleagues for minor accomplishments to boost their confidence and show that you appreciate them.
Example Assign a space in the office where colleagues can write messages to congratulate each other and recognize their accomplishments.

7. Perform an act of kindness

Doing something kind and unexpected can improve someone's day. Here are examples of acts of kindness for colleagues:

- Bring in donuts
- Get everyone a coffee
- Submit positive feedback to the manager
- Take a colleague to lunch
- Leave a kind note on their desk

8**. Organize a group lunch**

Organizing a lunch for your team is a great opportunity to talk and offer support and can be an effective exercise to develop teamwork skills.

9**. Inspire positivity**

Inspire positivity in the workplace by maintaining a friendly attitude. Your good mood may encourage a colleague's mood, and this can help improve the overall work environment. Remaining self-aware and checking your own emotions can be key to promoting a healthy and stable workplace.

2.3.3 Sharing Relevant Information

How to share information with team members

There are all kinds of information-sharing tools and methods, but another organization's approach might not suit your team. But how will you know when the way that you're sharing information *is* working well? Below are seven steps that power every great strategy for sharing information effectively.

As an example, below are a few communication methods and the types of information teams most often use to share them.

Virtual communication:

- **Instant messaging (Slack, Google Chat, etc.)**. IM platforms are good for quick project updates and easy-to-answer questions.
- **Email**. You can use email to send your whole team all the same updates at once.
- **Company wiki**. A newer way for employees to share information, company wikis can be a great place to run down your procedures, protocol, and more.
- **Google Docs** (and Google Docs alternatives). You and your team can use these tools to collaboratively build on any type of important information in real-time.

  In-person communication:

- **Stand-up meetings**. You can hold stand-up meetings daily for status reports on projects and tasks.
- **Team meetings.** At your team meetings, you can share all sorts of information and knowledge to help everyone overcome all their obstacles together.
- **All-hands meetings.** These special meetings gather everyone at your organization so you can share as much information of any kind with as many people as possible.

Self-check 2

I Explain define and or Mention

1. Mention at least four appropriate network hand tools
2. What is the function of a network tester, explain
3. What is the function of a punch down tool
4. What kind of measure do you take when an accident is happening in a work place

II True or False

1. A tonner probe is a network tool used to track the other end of a particular network cable
2. In a tam work no one is allowed to seek help from other members

III Fill the blank space

1. _____is a networking hand tool used to connect Rj-45 to cable ends
2. _____is a term that deal about how to work in a healthy and safely environment

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