

# JOB ROLE – WIREMAN-CONTROL PANEL

Sector – Electronics  
(Qualification Pack Code: ELE/Q7302)



PSS Central Institute of Vocational Education  
Shyamla Hills, Bhopal – 462013 , Madhya Pradesh, India

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# UNIT 9: WIRE PREPARATION METHOD

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# Unit Objectives

The student will be able to:

- Describe the need of wire preparation,
- Perform the wire preparation methodology,
- Describe the cable crimper,
- Perform wire stripping,
- Perform wire bending,
- Describe wire joints,
- Perform crimping.

# Introduction

Wire preparation is done through cutting, stripping, slitting, marking, crimping. The tools required for this purpose are wire stripper, wire cutter, crimper and many more. Electrical wiring must follow the electrical regulation and safety standards. Adhering to the safety standards increases the control panel durability.



Strippers

# Need of Wire Preparation

Have you observed the way your mother cook food?



She follow the correct steps to cook food:

1. Wash and peeling the vegetables
2. Cutting the vegetable
3. Cook the vegetable

# Wire Preparation

- Likewise, there are some steps for wire preparation.
- Steps are as follows:
  1. Wire Stripping
  2. Wire Marking
  3. Wire Cutting

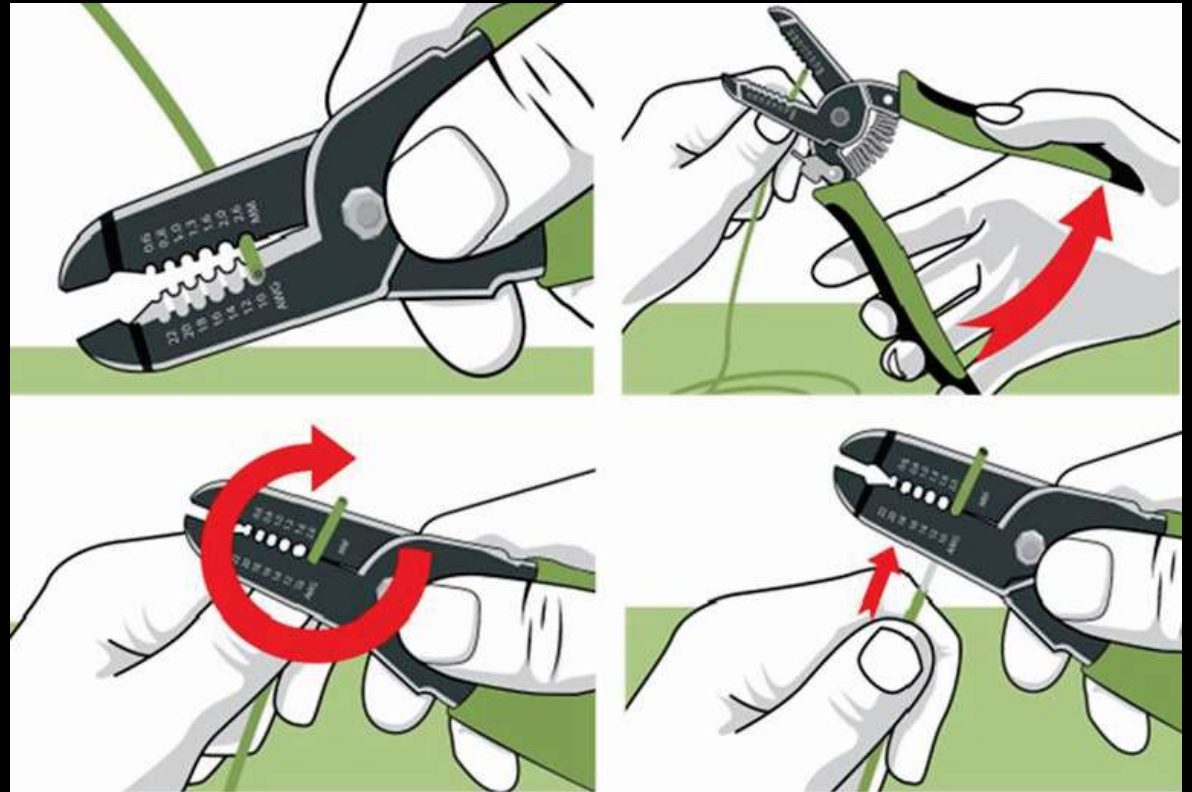
# Wire Stripping

It is process to **remove the wire insulation.**

**Wire stripper** is a hand tool **used to strip the insulation.**

Hand operate stripper are:

- **Adjustable**
- **Non-adjustable**
- **Hand-held automatic**



Steps of Stripping



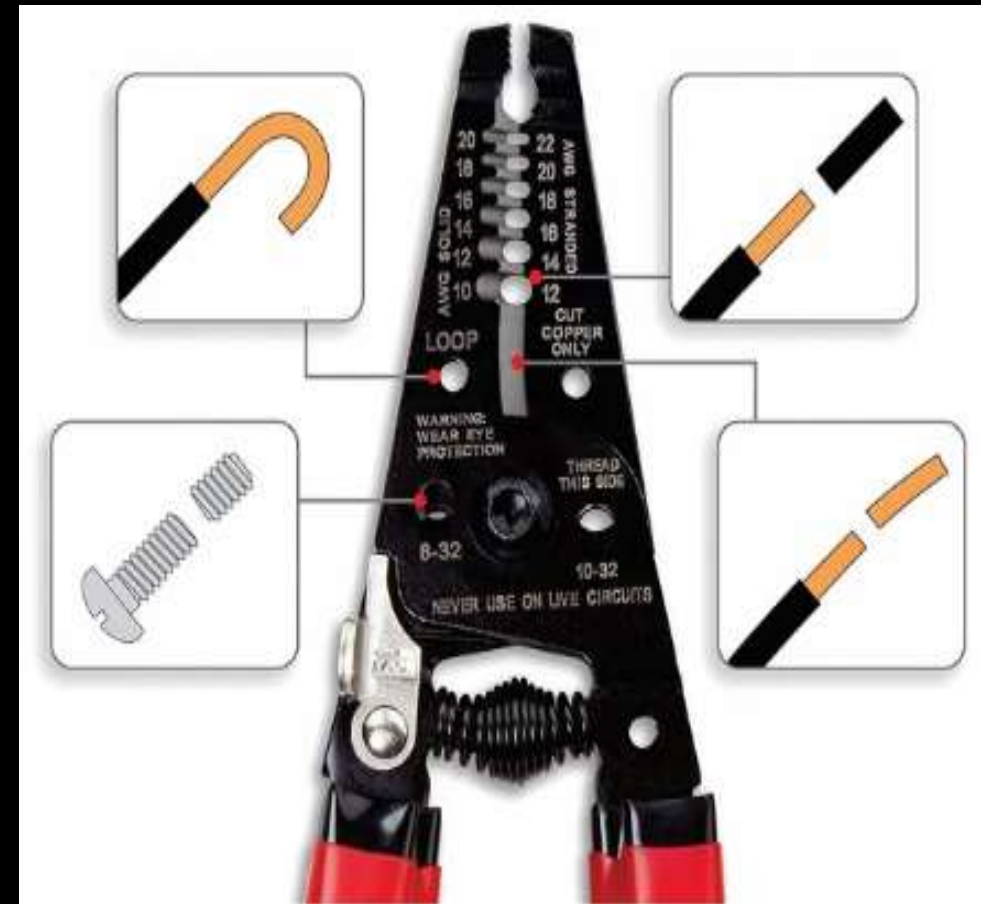
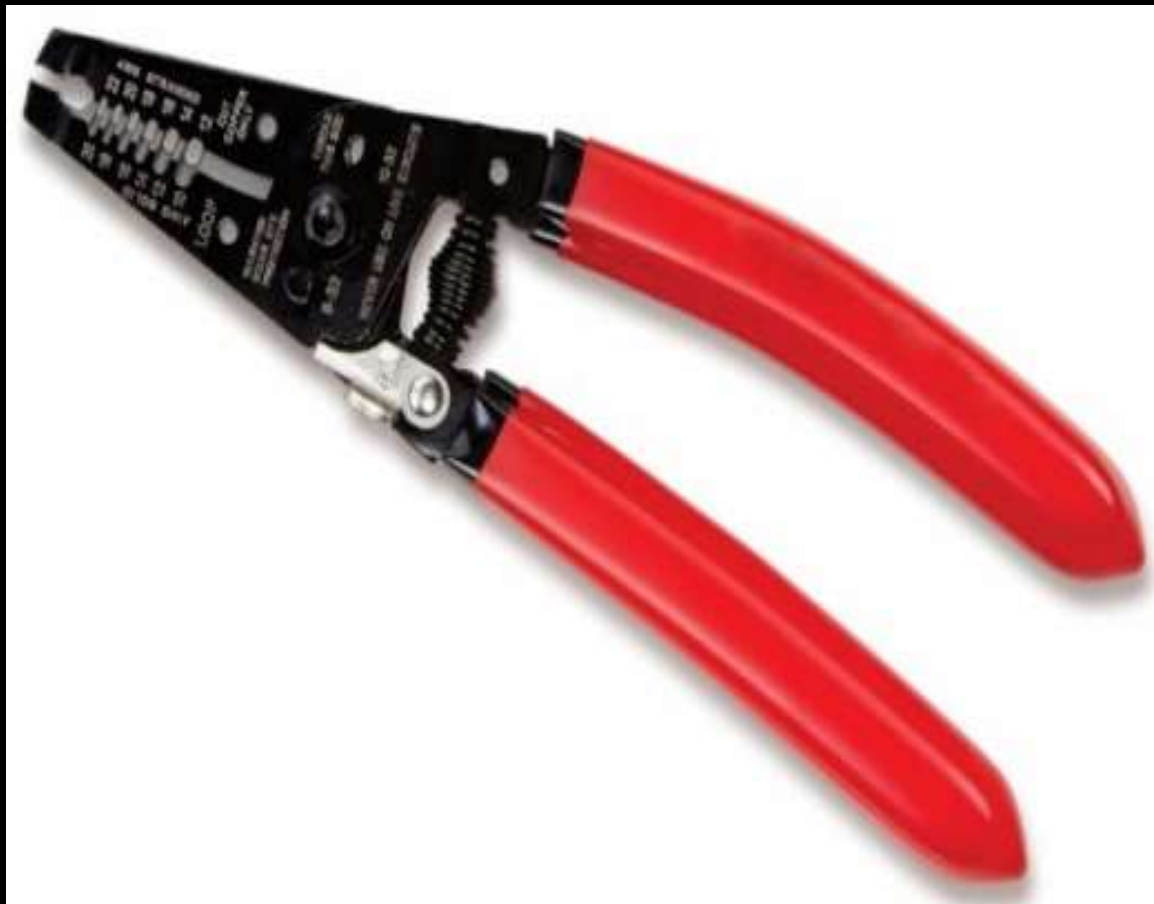
**Adjustable Hand Stripper-** It uses V-shaped jaws for cutting the insulation.

- There is a stop screw that can be adjusted back and forth.



Adjustable Hand Stripper

**Hand-Held Automatic Stripper-** It has self adjustment slots. These slots will get adjust as per the diameter of the wire.



Hand-Held Automatic Stripper

**Non-adjustable stripper-** It is a tool that can be adjusted according to the length of the strip.



Non-Adjustable Stripper

# Wire Marking

- Wires are marked with different colours or they can be label to provide the information about the wires.



Mark on wire

# Wire Cutting

- It is used to cut the wire.



Wire Cutting

# Cable Stripper

- Cable insulation can be removed using the cable stripper.



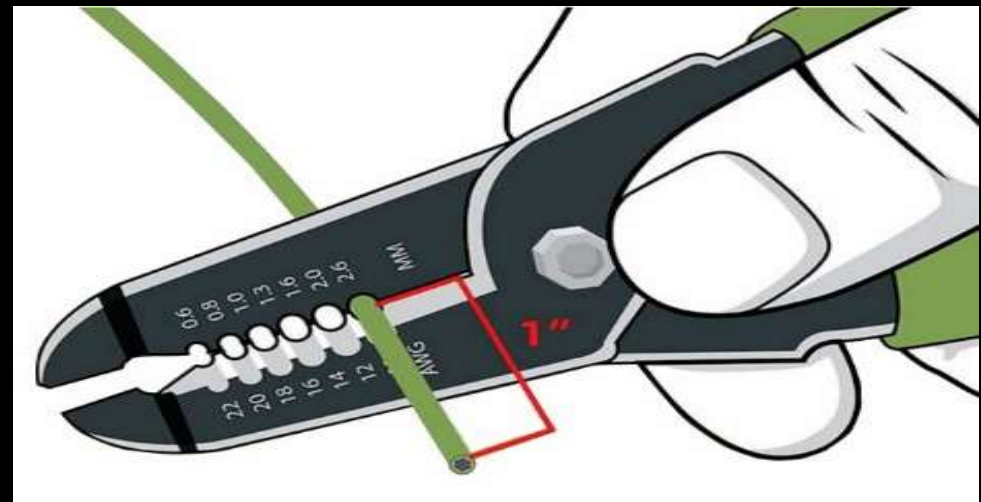
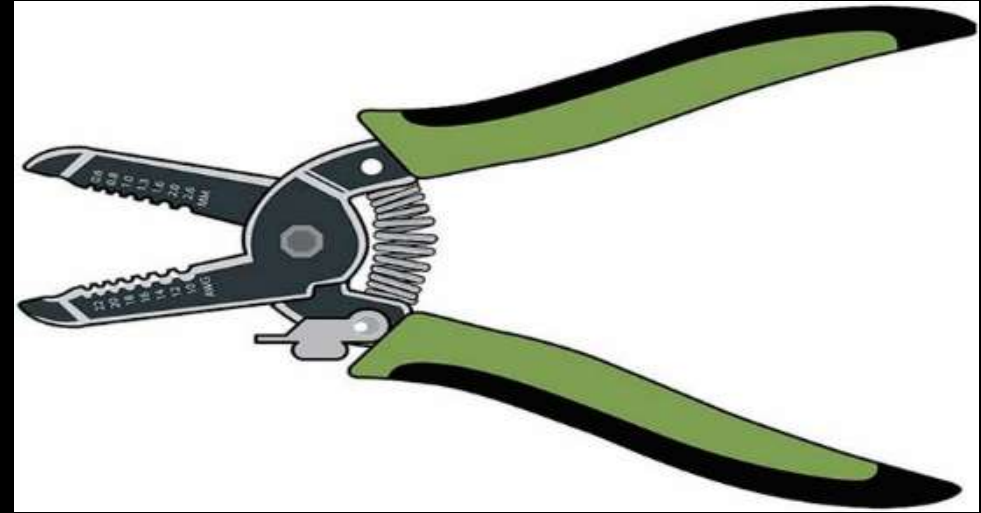
Cable Stripper

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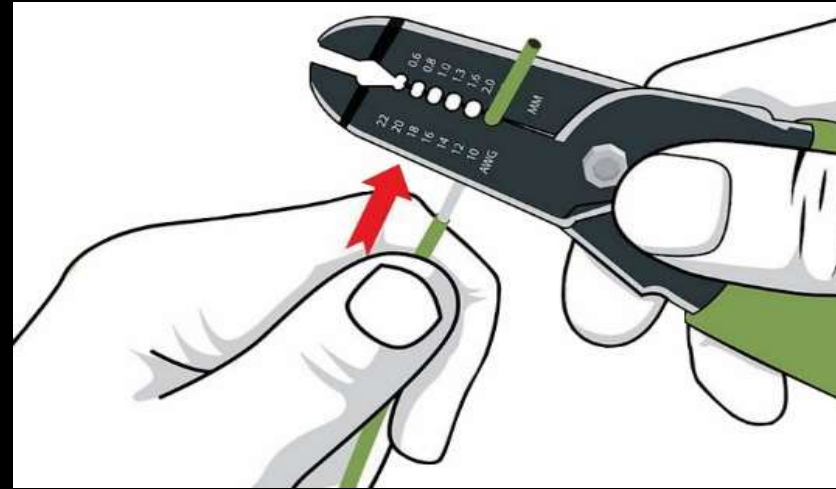
# Wire Stripping Procedure

- Wire stripper have number of notches in the jaws.
- Choose and place the wire in the notch as per the diameter of wire.



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- Try to put enough pressure to cut down the insulation.



- After closing the stripper jaws. Rotate the stripper around the wire, cut the circumference of the insulator.

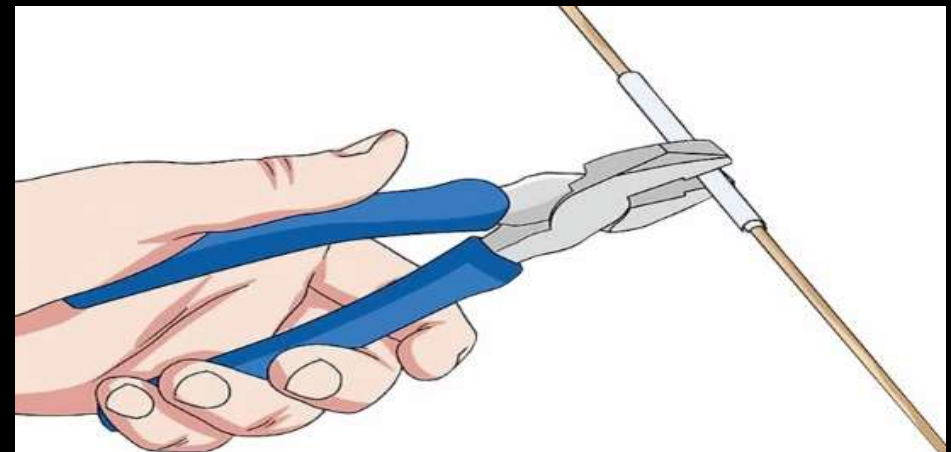
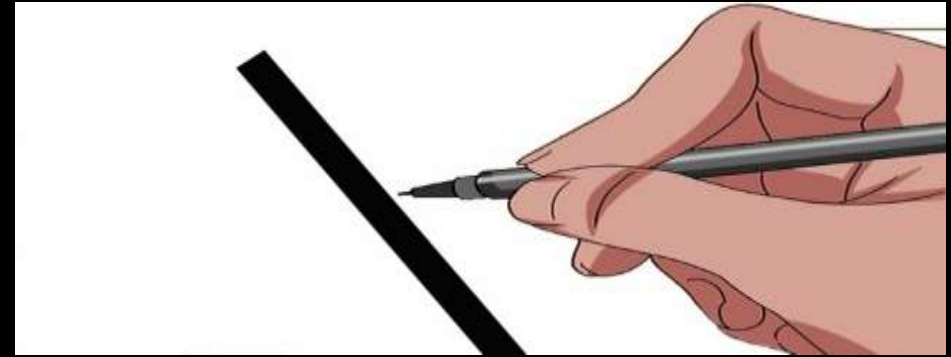




# Wire Bending

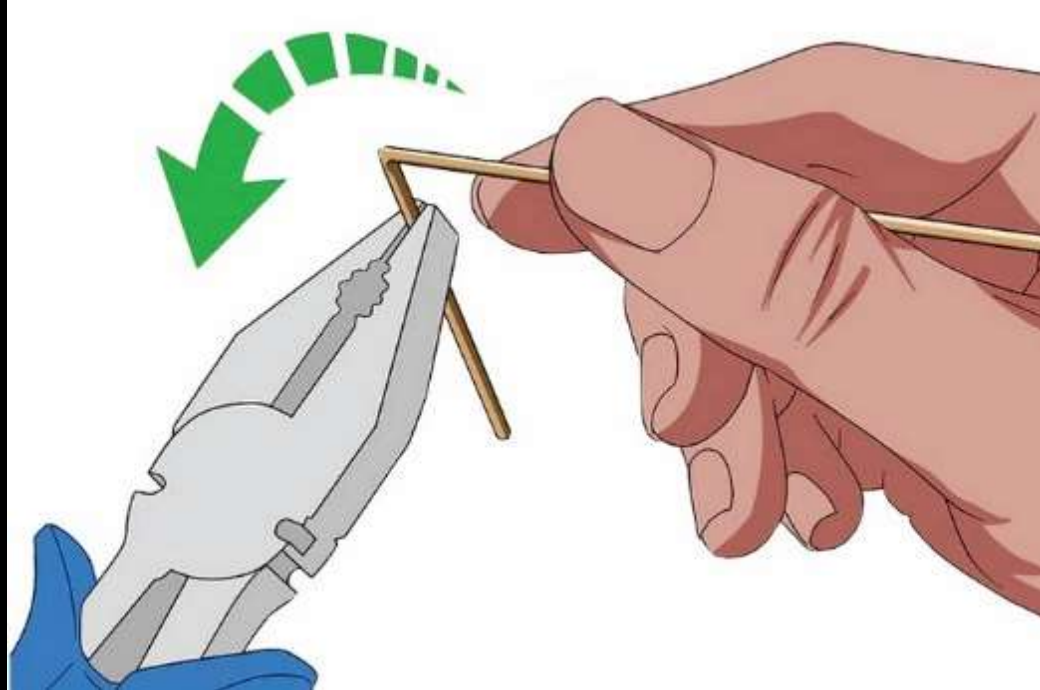
At the time of wiring there is a requirement of bending the wire. Wire bending steps are as follows:

- Mark on the wire.
- Wrap the wire for preventing any damage.



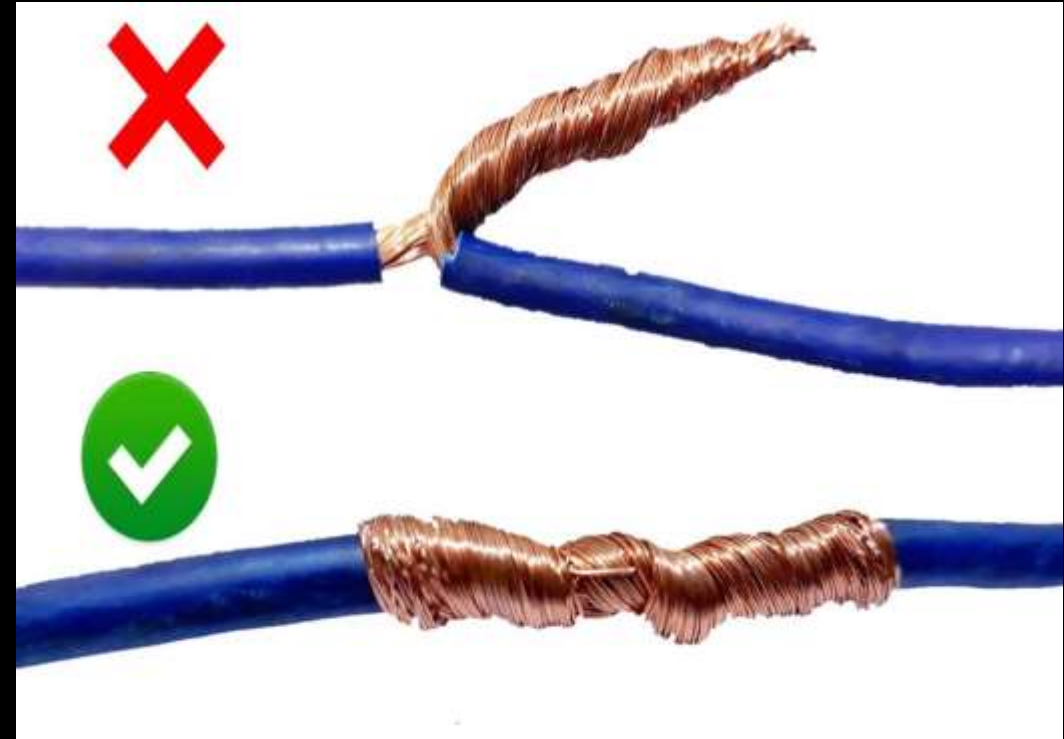
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- Use plier for bending the wire by 90 degree.



# Wire Joints

- For long distance wiring, there is a need to join two wires. In such conditions different type of wire joint can be made.

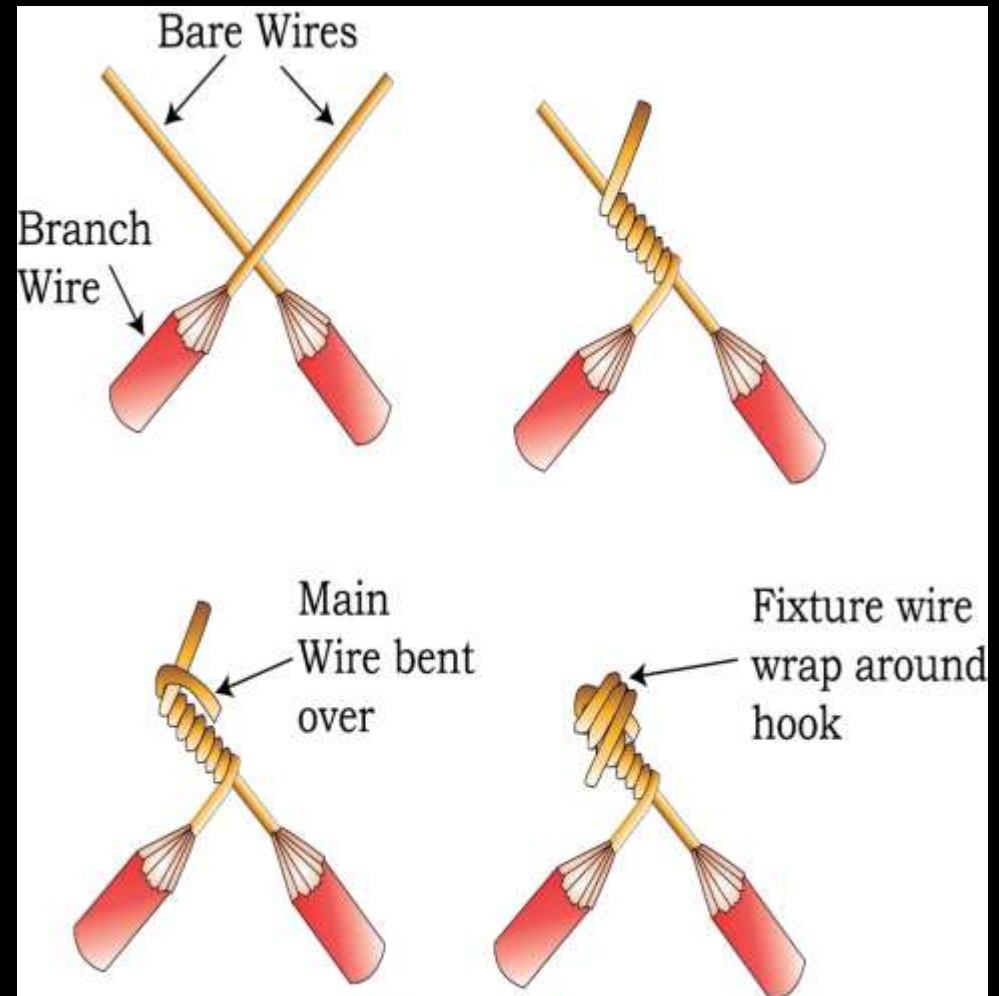


Incorrect and correct wire joint

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# Different Wire Joints

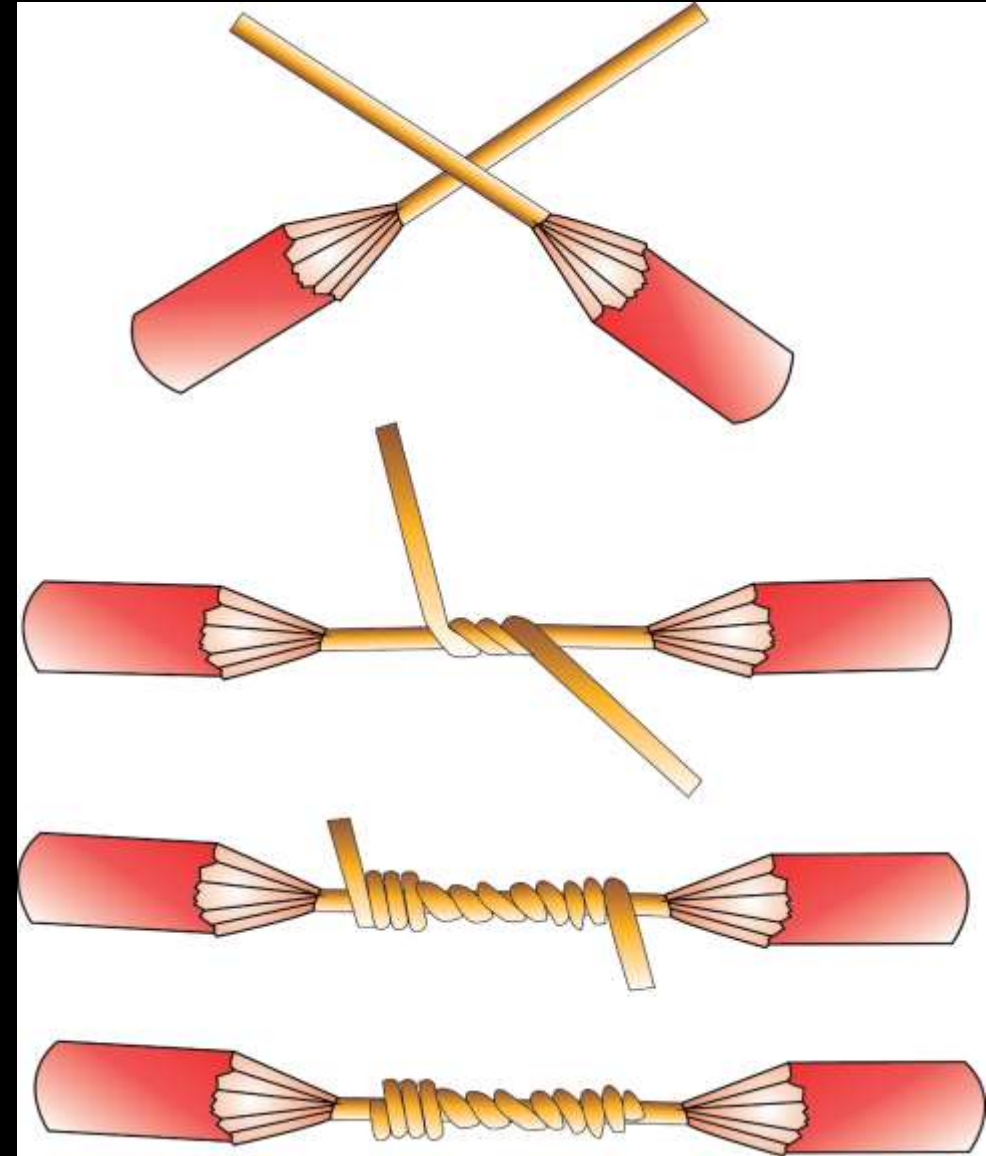
- **Western Union Joint:** It is a straight joint used for small solid cables.



Western Union Joint

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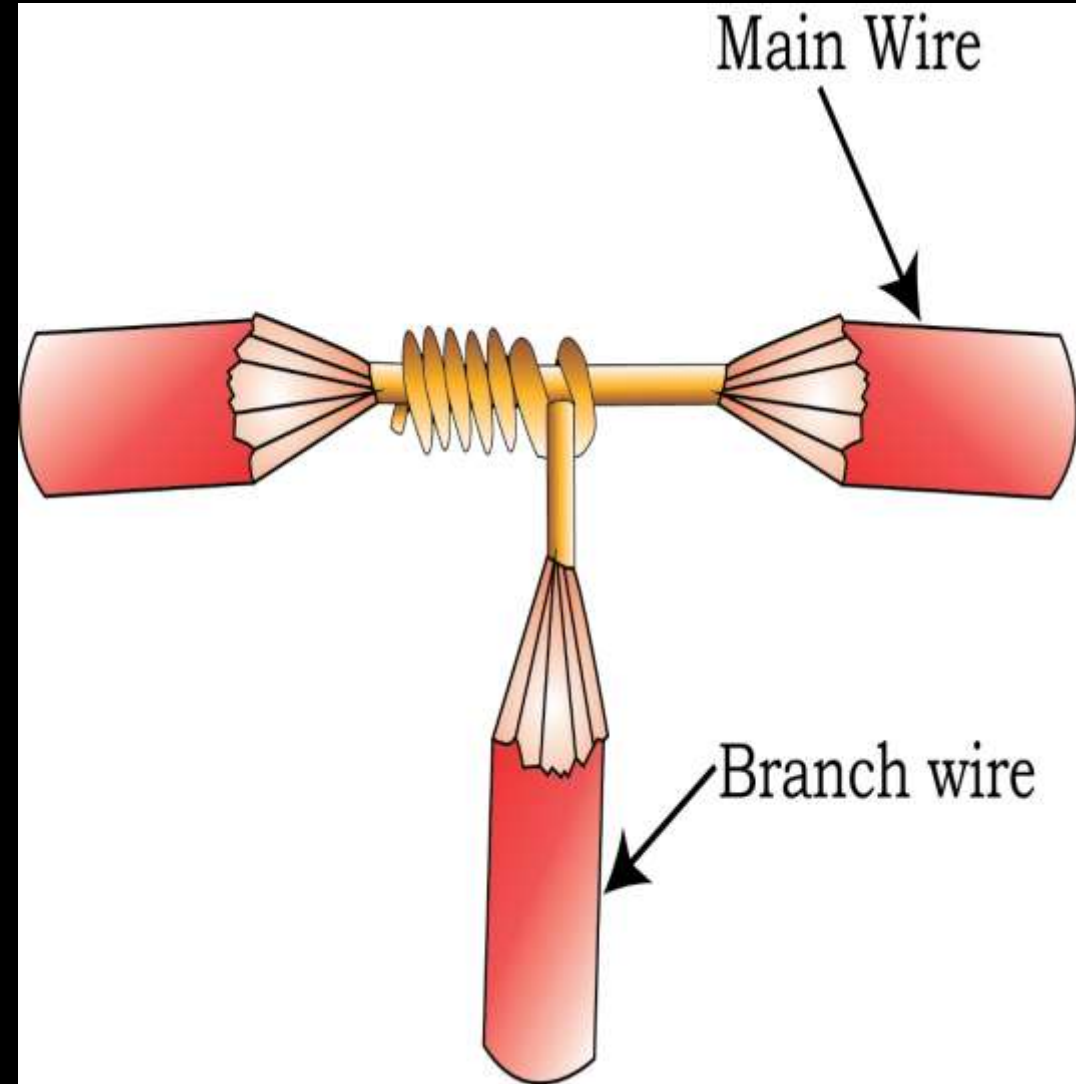
- **Fixture Joint:** It is a type of branch joint connecting small diameter wire to the large diameter conductor.



Fixture Joint

Continue....

- **Knotted Tap Joint:** It is used for branch joints to connect a branch wire to main wire.



Knotted Tap Joint

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# Crimping

- It refers to joining the wire and connector.
- Wire and connector are connected by deforming connector using a tool called crimper.



1. Stripping



2. Stripped Wire



3. Connect the Connector



4. Crimping



5. Crimped Connector

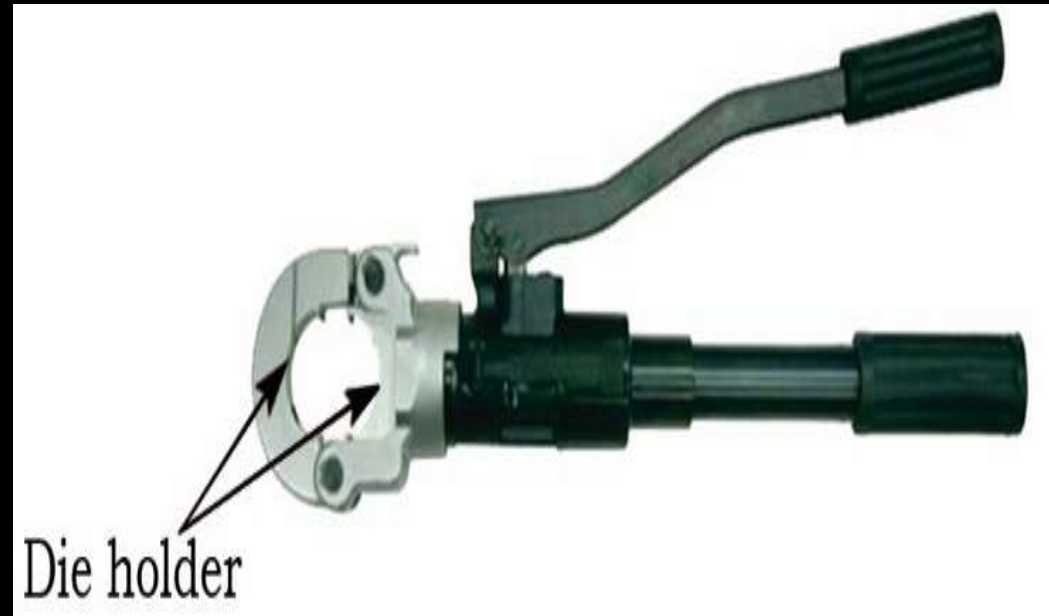
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Crimping tool can be:

- Mechanical crimping tool
- Hydraulic crimping tool



Mechanical Crimper

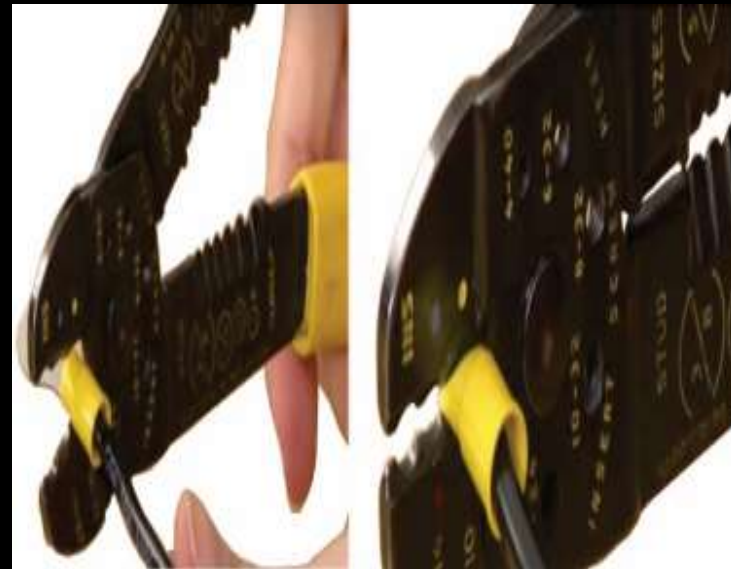


Hydraulic Crimper



# Mechanical crimping tool

- It is used for the wire of diameter ranges from 2.5mm to 16mm.



Crimping using mechanical crimper

# Hydraulic crimping tool

- It is used for the wire of diameter ranges from 35 mm to 1000 mm.



Step 1



Step 2



Step 3



Step 4

# Summary

- Wire preparation steps are stripping, cutting, marking.
- Wire stripper is used for stripping the wire insulation.
- Wire joint can be made using different method such as western union joint, fixture joints, knotted tap type joint.
- Crimping is process of joining the wire and connector.
- Crimper such mechanical crimper or hydraulic crimper are used to perform the crimping.

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