



Electrical Construction

Western Technical-Commercial School

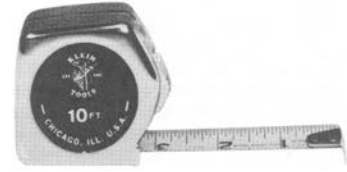
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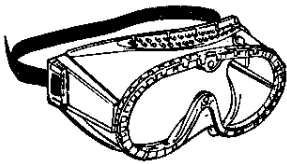
Tools of the Trade

The following are common tools that are used in the electrical industry. This hand-out is to help familiarize you with the tools, the terminology, and their use.



Retractable Steel tape measure:

Safety Goggles or glasses



Eyes are required to be protected whenever there is a chance of flying debris, pressured air, rotational powered tools, and or any other possible eye damaging situations.

Hammers:

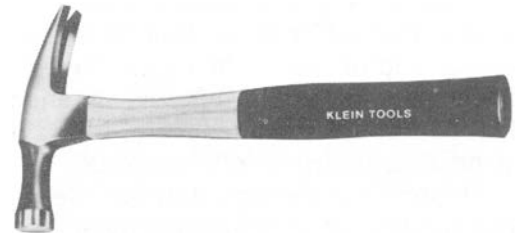
Ball-peen:

Most commonly used for all general needs in the electrical industry. Round end can be used to shape metal.



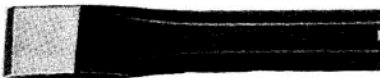
Claw:

Used more by carpenters, but useful for pulling / leveraging nails, clips, etc out of wooden studs. It can be a very practical tool.



Mallet:

They are used for situations where a heavy blunt impact with a softer surface is required. May be made out of wood or metal with plastic or rubber surrounding.



Chisels:

Used to chip, cut or push with the addition of a hammer.

Centre Punches:

Used with layout to pre-mark/indent hole to be drilled.





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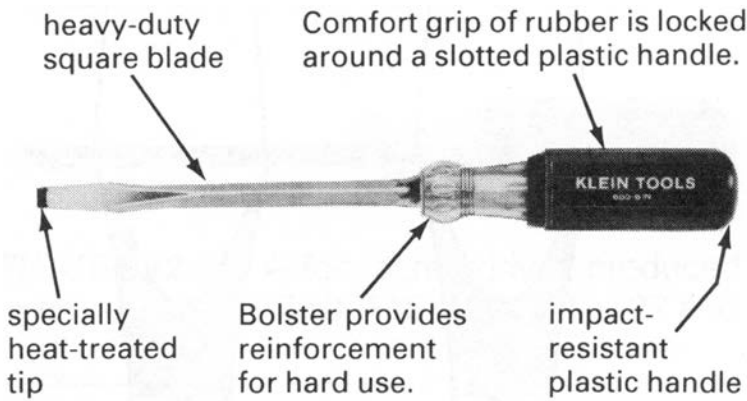
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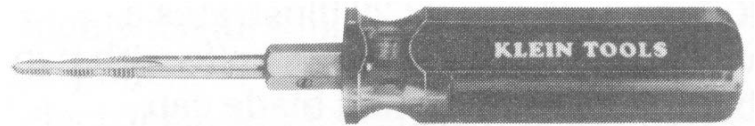
Screwdrivers:



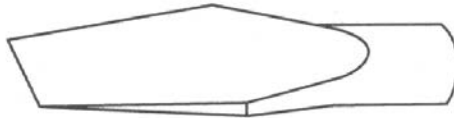
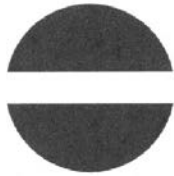
Screwdrivers come in many tips, sizes, and lengths. Electricians normally carry a slot, Phillips, and Robertson tip style screwdriver with a couple sizes of each.

Tri-tap:

This tap comes in the form of a screwdriver handle to allow manual tapping when needed.(below)



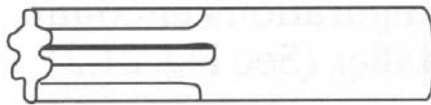
Common Screwdriver Tips



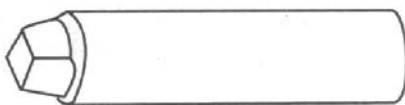
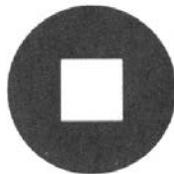
Slot: one of the oldest common screw heads. Common sizes with largest to smallest 1/2", 5/16", 1/4", 3/16", and 1/8"



Phillips: Invented in the US, great at angles, and commonly found in a lot of US made devices, with #2 and #3 sizes most common



Torx: More of a security type tip used on car lamp covers, etc.



Robertson: Canadian invention with sizes largest to smallest starting from black, red, green, and yellow



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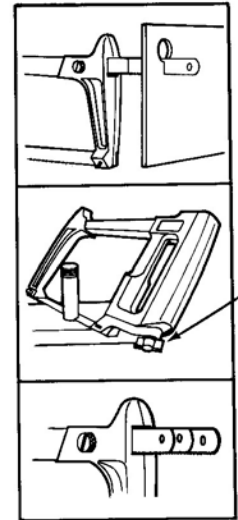
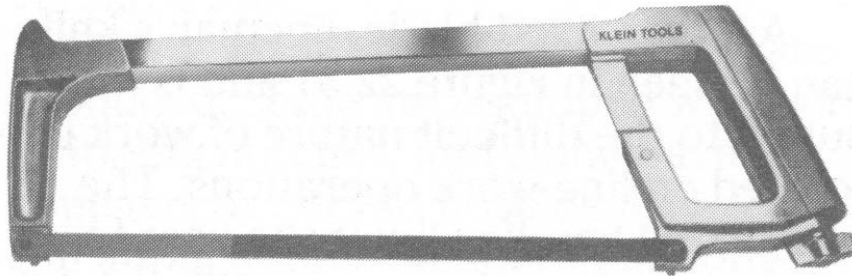
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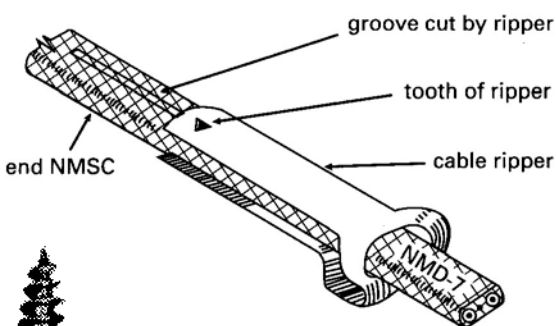
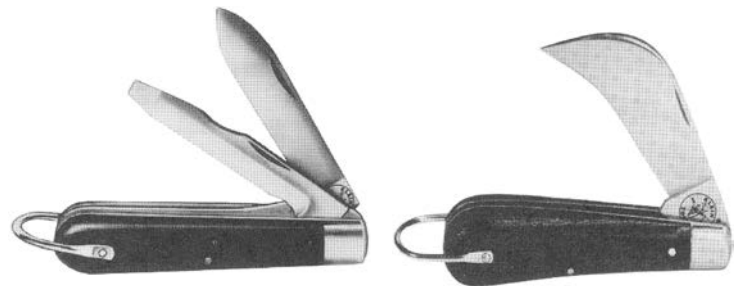
Hacksaw:

Used to cut metal, conduit, plastic, wire and cable. This particular type of saw has some additional features such as easy/high leverage blade tightening, single end and 45 degree blade mount. Blades sized in teeth per inch with #16, and #22 commonly used.



Electrician's Knives:

There are several types both folding and solid handle grip. They are used normally to cut cable sheathing, strip large and small wire. The hook type characteristic blade is designed to make stripping wire easier.

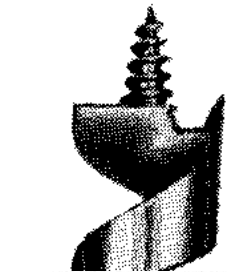


Romex Cable Ripper:

It is used to safely slice the plastic sheathing around the conductors, without damaging the conductor insulation.

Auger Drill Bit:

This drill bit is used to drill large holes through wood studs very quickly. Normally 12 to 18" long with several diameters for large cables.





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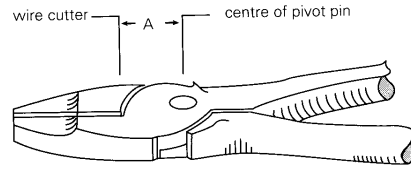
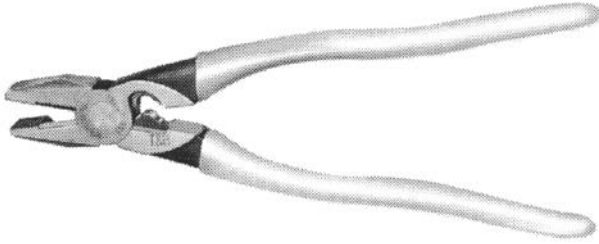
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Pliers

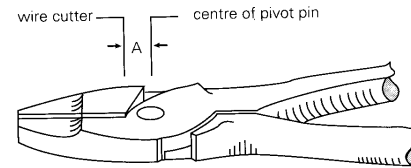
Lineman:

The most common tool used by the electrician. It can twist, and cut wire with the usual addition of having features such as fish tape gripper or solderless terminal crimper.

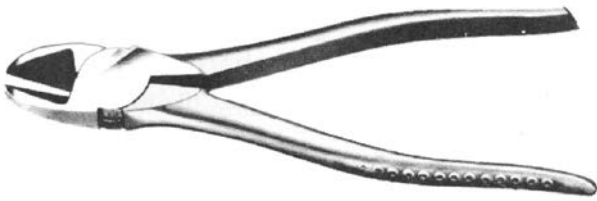


Standard side cutters have the pivot pin located approximately twice as far from the cutter (dimension A) as the high leverage models, providing less cutting pressure.

grip,
extra



Distance "A" on high leverage models is less, providing twice the cutting pressure.

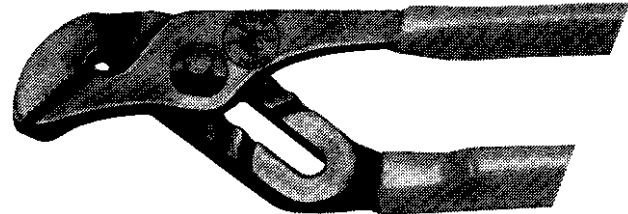


Diagonal or Side cutter

Commonly used to cut wire, with this tools strength, cutting very close to objects and in tight areas.

Pump:

This is a slide adjustable plier which can accommodate several sizes of conduit. It is a directional plier, designed to increase grip the more you try to turn.



Needle Nose:

This is used to work in tight spaces for gripping and twisting. Some come with a wire cutter built into the centre.

Wire Strippers:

Used to strip wire as large as #10 to as small as #20 gauge. It also has a scissor style wire cutter.





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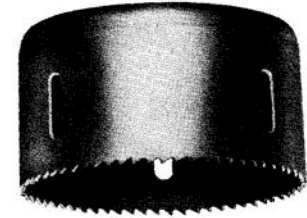
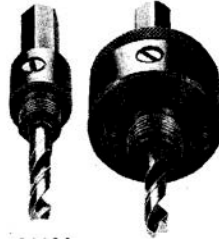
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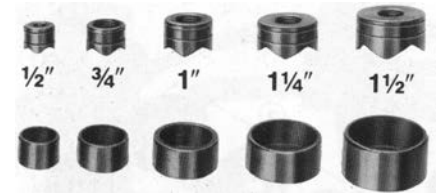
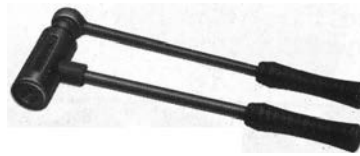
Hole saws:

Used to cut circular holes through metal, wood or plastic materials. There are two parts which include the mandrel for using with all of the different circular tooth blades sizes.



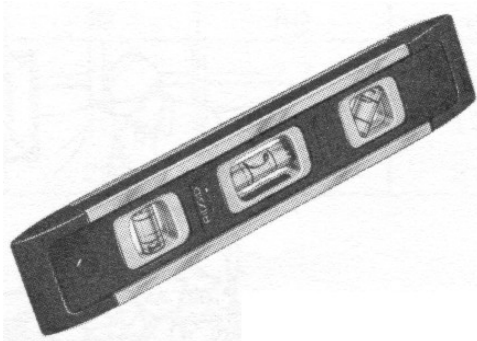
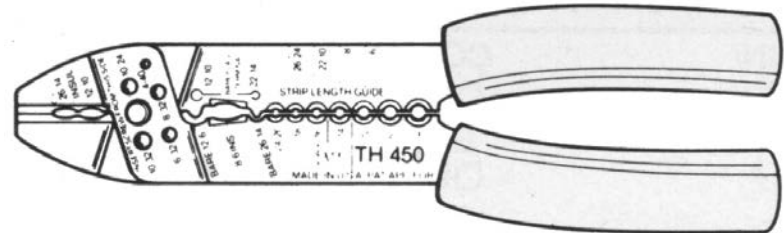
Knock-out Dies:

This is an effective way to cut holes into in metal boxes for entrance to conduit with a clean cut either by using a wrench or a hydraulic manual pump.



Multi-Crimper Tool:

This special tool can crimp, cut wire, strip wire, and cut small bolts. This is one tool that always has a use.

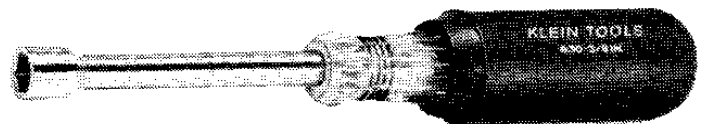


Magnetic Torpedo Level:

Used in most installations to make sure devices are sitting straight which may include electrical devices, race way, or large housings.

Nut driver:

Similar to a screwdriver except that it is made for hex bolts and nuts. When needed, come in very valuable for an electrician such as in electrical device components.





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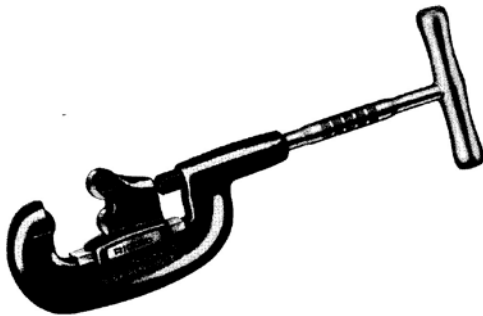
Rigid Conduit/Pipe Ratchet Threaded:
This tool can thread the end of a conduit.
They range from 1/2" to 5"



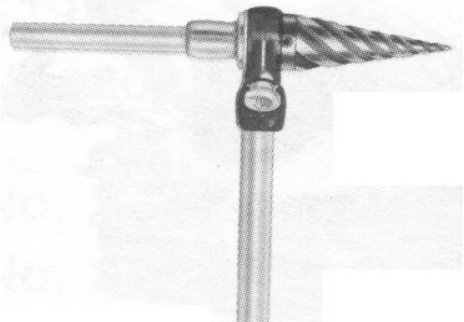
Portable Tri-Stand
Yoke Vise:
Very handy clamping
tool for clamping
round conduit and
cutting and finishing
ends.



This tool
straight.
conduit.
hack saw

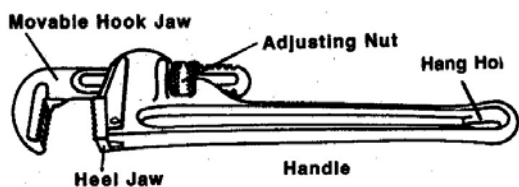
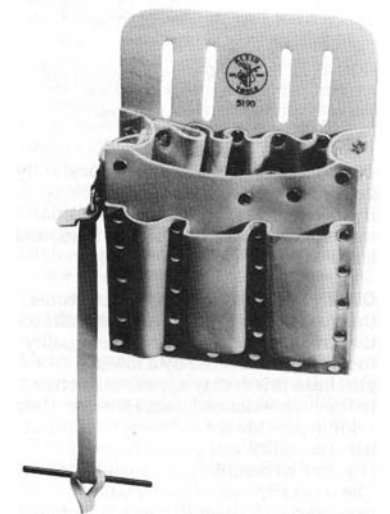


Conduit/Pipe cutter:
cuts conduit very clean, smooth and
It is commonly used when working with rigid
It also cut EMT, and PVC conduit too, but a
is usually first choice in these lighter
raceways.



Conduit/Pipe reamer:
This tool is used to take out the sharp edge that is left
inside the conduit once it has been cut by the
conduit/pipe cutter.

Leather Tool Pouch:
It is an Electrician's tool pouch which can carry a multitude of tools
to get most jobs done. It is meant to be worn around the waist
loosely at one side or the other.



Adjustable Pipe Wrench:
Stronger than the pump pliers,
this tool will definitely complete
the job.



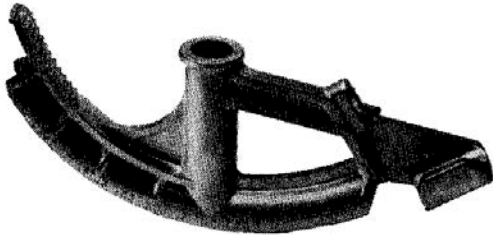
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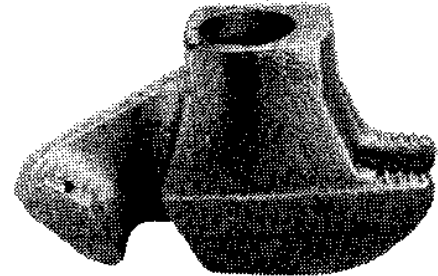


Conduit Bender:

A bender is referred to as a tool for bending EMT (Electro-Metallic Tubing), an electrical conduit raceway. (Handle not shown)

Hickey:

This is also a bender, but it is designed to bend only rigid conduit, which is used in heavy duty or hazardous areas where extra protection is needed. (Handle not shown)

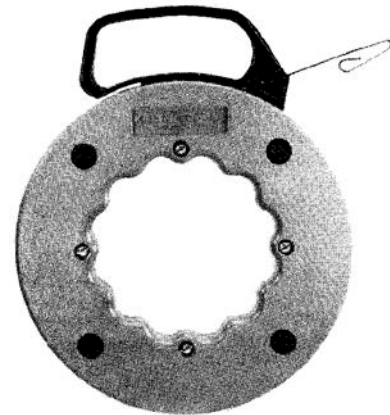


Scratch Awl:

Used to mark, puncture, and align holes.

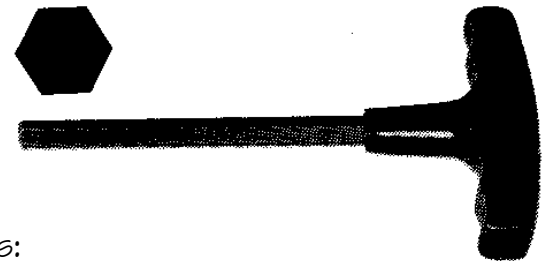
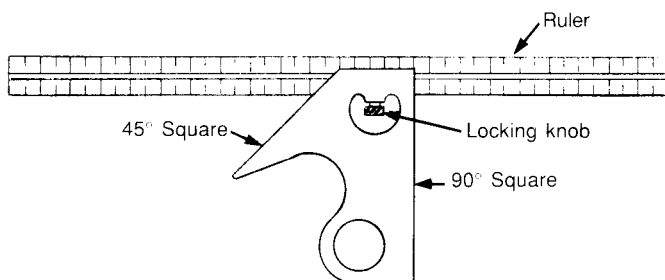
Fish Tape:

This tool is used to initially push into a conduit until it comes out one end, then tie on your wires required to be pulled through usually with the addition on wire ease lubricant. They come in various lengths to accommodate needs up to 200 feet.



Combination Square:

Multi angle marking/layout tool, commonly comes with on board level.



Allen Hex Keys:

This type of has its purpose in-between a bolt and a machine screw. Commonly found on motor devices, as a set screw holding the keyway.