

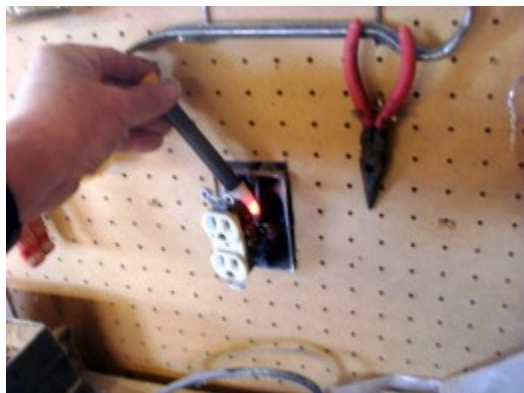
# Energy Technician Tool List

## Quality and the electrician's hand tools

While it is recognized that anyone just becoming an electrician most likely has a severely limited budget, the set of electricians hand tools is not the place to cut cost by buying cheap tools. Such tools will not last and are much more difficult to use - a simple rubber handle on a screwdriver can make a large difference after using it all day. Make sure that high quality tools fill the new electrician's tool bag.

There are often many brands available for the same basic tool, with many different prices, and brands will be recommended as well as the actual tool where applicable. Klein Tools makes high quality electrician tools, as does Knipex, Ideal and Greenlee. Professional power tools are offered by Milwaukee, Dewalt and Bosch. Again, use only high quality tools for everyday use.

## Important Safety Tools for Electricians



Using a tick tester, or non contact voltage detector. Find hot wires before cutting or stripping them.

Source: Wilderness



Voltmeter in use - know what voltage you will be dealing with, and if it is hot.

Source: Wilderness

## The electrician tool belt and bag (*recommended*)

First on the list might be an electrician tool belt. There are many styles of tool belt available, and most are aimed at the different trades expected to use them. An electrician's tool belt will need several pockets on one side for small parts and supplies with pockets on the other side for hand tools. It should have a place to hang electrical tape and a hammer loop.

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Too many pockets, however, can be a hindrance. A tool belt gains weight as tools and parts are added - it can quickly become quite a job to wear it all day. Many electricians use a tool belt with only a couple of pockets for parts, though 3 or 4 is handy as parts don't get mixed up. Several pockets will be needed for hand tools, with loops on both the inside and outside for pliers. For specialty work such as installing large numbers of switches or plugs a small sheath for just a screwdriver and a pair of pliers can be very handy as it eliminates most of the weight when the electrician knows they will need only a few hand tools for the day.

Consider a set of suspenders for the belt as they distribute the not inconsiderable weight to the shoulders and make carrying the belt an easier job. They are spendy, however, and can wait if necessary. Electrician tool belts are commonly made of either leather or nylon; it seems a matter of personal taste which one to use. Do make sure, however, that the belt buckle is adjustable and long enough to accommodate winter clothing. The tool belt should be constructed with heavy duty stitching and rivets, but should last for years. An electrician's tool belt should be available at your local home improvement store such as Home Depot, but if not they are widely available online, including at Amazon.

A tool bag is also quite desirable as tools are usually transported into the job site each morning and removed in the evening. Theft of tools is quite common at job sites during night hours and most electricians won't risk losing their precious hand tools. The electrician's tool bag is one place, however, where some money can be saved; many use nothing more than a 5 gallon bucket. A nylon tool bag often has pockets both inside and outside for smaller tools, but a simple bucket can work well in the beginning.

## Pliers - primary electrician tools

There are dozens of different styles of pliers available and the well-equipped electrician's tool bag will contain several of them.

### Needle nose pliers (*recommended*)

A good set of needle nose pliers is indispensable for the electrician. Klein and Knipex both make a very good set with built in wire cutters and even a stripping hole for #12 wire, both of which are handy options. Enough so that needle nose pliers for the electrician should *a/ways* have the wire cutter option. The Knipex set also includes crimpers for ferrules.



### Lineman's pliers

A good heavy set of lineman's pliers will often be needed. Again, Klein makes a very good set with an optional fish tape pulling arrangement on the side of them. A very handy option for the electrician, and the arrangement on the side is far preferable to the same type of option where the fish tape fits between the handles - it is far too easy to receive a very nasty pinch with that style.



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## Side cutting pliers (dikes) (*recommended*)

Side cutting pliers, or "dikes" are common to every electricians tool set. These are used to not only cut wire, but nails, staples, MC cable and other items. Make sure that the jaws are specially hardened for such use, not merely intended for cutting copper or aluminum wire. Klein makes two different sets; one with red handles and a set with blue handles and hardened jaws. Knipex also makes a good set of side cutting pliers. These pliers should be in the 8" - 10" length.



## Slip joint pliers (*recommended*)

Commonly called channellock pliers (a trade name) a 8" or 10" pair of slip joint pliers will be required. Recommended here are the [Knipex Cobra 10" pliers](#), or even the three piece set of 7, 10 and 12" lengths.



## Wire strippers

Although not truly pliers, a pair of wire strippers are a necessary item in the electricians tool belt. Although wire strippers are available for Romex wire, far more common are simple strippers for #10 and smaller solid (not stranded) wire. Ability to strip #8 and #6 wire is a plus where available. Recommended are either Ideal or Klein strippers; Ideal is usually a little cheaper, Klein is more comfortable to use. Don't buy the automatic style; just a simple pair of wire strippers for several sizes of solid wire. GB offers a set of wire strippers with a built in voltage tester, but cost considerably more. As wire strippers are considered a "throw away" tool (they simply wear out frequently) the extra cost really isn't worth it. A good razor knife will be endlessly useful, but one of the most important uses is likely to be cutting the sheath on the NMC wire used in residential. Using wire strippers for this will inevitably cause damage to the wire at times.



## Drivers in the electrician hand tools

Included in this section are screwdrivers, nut drivers and similar tightening tools for the electrician.

### Screwdrivers

A top quality set of screwdrivers will be in every electricians tool bag. Included needs to be a cabinet tip flat blade, a larger flat blade, a #2 phillips, a #1 phillips and a #2 square tip. Klein is recommended, but Ideal also makes an acceptable screwdriver set.



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## Nut Drivers

A good set of nut drivers, from 1/4" to at least 7/16". Klein is again recommended, in the middle shaft length. The Klein set with long hollow shafts is useful in some circumstances but not worth the extra trouble of carrying the long handles in the electricians tool belt.



## Allen Wrenches (hex keys)

Allen wrenches are a must. Electricians typically prefer sets of allen wrenches such as made by Klein - both large and small sets are used, both in SAE sizes. Very occasionally it would be nice to have individual allen wrenches, but it again is not worth the extra trouble and cost and individual wrenches are often forgotten and lost.



## Socket set

A socket set is used by all but strictly residential electricians, and sometimes there as well. Deep sockets are more valuable than shallow, and both 1/4" and 3/8" ratchets are useful. These are not high use items, nor are they used to tighten to extremes. A Craftsman set or equivalent is recommended here, but be sure it has a good selection of deep sockets.

## Adjustable wrench

A couple of adjustable wrenches, of perhaps 8" and 10" length will be found in the electricians tool set. Again, absolutely top quality is not needed as they are used for light duty only; such brands as Craftsman are quite adequate.



## Pipe wrench (optional)

There are times when a pipe wrench is invaluable; Ridgid makes a good pipe wrench in about the 10" size that will work well. A second wrench of the same size is advisable for working with rigid conduit.

## Conduit Reamer (optional)

Although not strictly a screwdriver, a conduit reaming tool is necessary for any electrician running conduit. Klein is recommended with their dedicated tool. Reamers are available for square shank screwdrivers but do not work nearly as well as the long screwdriver blade prevents the reamer tool from entering a conduit with a bend near the end of the conduit.



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## Electrical meters and testers

There are several meters and testers that need to be included in every electricians tool bag.

### Multimeter (*recommended*)

A multimeter capable of reading up to 600 volts is necessary. It should also be able to detect continuity. A clamp on style of multimeter with amperage capability is preferable. Fluke is the preferred brand, although cheaper brands are available and will be adequate for the apprentice who is just becoming an electrician.



### Tick tester (non contact voltage detector) (*recommended*)

Every electrician should be equipped with a [non contact](#), [or tick tester](#) and many have a spare tester in the truck as well as one in their pocket. Testers that use ordinary AAA batteries are preferable. Fluke again makes a good tester.



### Plug tester

A plug tester with a built-in GFI tester is necessary and fairly inexpensive. Nearly any brand will work just fine here.



## Drill kit (*optional*)

A good cordless drill kit is a necessity. As cordless tools have increased in popularity the sawzall has become almost a requirement for an electrician although an ordinary hacksaw will suffice.

Recommended in drill kits are either the [Milwaukee or Dewalt drill and sawzall kits](#). If possible, a kit with a flashlight should be purchased and all need to operate on no less than 18V batteries. Any set purchased must contain at least 2 batteries and three are very handy. A one battery charger is sufficient for most people although dual battery chargers are available.

The new Lithium batteries are a major plus and are far superior to the older nicad batteries if funds are available. Purchased separately they are quite spendy and require a special charger so they should be purchased with the kit if at all possible.

Avoid cheaper brands if possible as their lifespan is limited and batteries are generally cheaper and the charge doesn't last as long. Cheaper kits such as Ryobi and Makita are a viable option given these limitations but the new electrician needs to realize that they will need replacement in only a year or so.

The newer [cordless impact drivers](#) are a very very nice addition to the tool bag and again should be considered if funding is available. If possible the drill itself should be a hammer drill as the electrician is often required to drill masonry and/or concrete.

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## Other hand tools for the electrician.

### Conduit Benders (optional)

If the electrician is expecting to do work in the commercial or industrial field they will need conduit benders in  $\frac{1}{2}$ " and  $\frac{3}{4}$ " sizes and perhaps 1" as well. These are not common tools found in every household and may **take some time to learn to bend conduit properly**, but it is time well spent.

### Level (*recommended*)

A good torpedo level is an absolute necessity; don't fall for the cheapest price that is available out there. Strong earth magnets to hold the level to conduit or other surfaces will prevent dropping and replacing the level. A plastic case will loosen over time and result in poor readings - make sure your level has a metal case. A level with a 30° vial can be very useful to the electrician; consider paying a few more dollars for one with that feature. Checkpoint brand is recommended.



### Measuring tape

A good quality measuring tape in either a 25' or 30' length is mandatory. Get a tape measure of at least 1" width - less width means less strength and that means the tape will not extend as far out without bending (standout length). Stanley makes a very good tape measure with their "fat max" series and is recommended.

There is a whole host of tools that are useful to the electrician, but these are the primary tools every electrician needs. Some suggestions for the future might include a tubing cutter of the type plumbers use as it is useful for removing conduit from around wire without harming the wire. Ratcheting cable cutters are nice but very spendy (nearly as much as the required drill kit). More and more work is being done with MC cable and cutters and strippers for it are useful as well. A cheap calculator is nice, but most cell phones now have enough capability for most electricians. Additions to the cordless drill package such as a circular saw or a peanut grinder can be handy but can be added later and is of only limited use in any case. Most electricians will eventually own a 100' roll type measuring tape.

The list can and will go on and on. You will need pencils and sharpies (indelible markers) and some kind of knife (razor knife, box cutter or large pocket knife) and other common household items. As you progress towards the journeyman more exotic tools will be needed and unfortunately often more expensive ones. The tools listed above should start the apprentice just becoming an electrician down the road they need to follow with a well stocked electrician set of hand tools.