

Electronic Tool Tip #17 – Safety Wire Pliers Set

If you are anything at like I am, you will sometimes find yourself having to form bifilar (and even occasionally tri-filar) wire twists in order to properly wind bifilar or tri-filar transformers or splitters. Then question is, how can one make these twists evenly, accurately, and consistently? The answer, as I discovered, is to use a specialized type of pliers called safety wire pliers.

So, what exactly are safety wire pliers? These are tools that are specifically manufactured to make it possible for technicians, especially aviation A&P technicians, to install properly twisted safety wires, to threaded fasteners. Safety wires are almost universally used in aviation applications to prevent the accidental or inadvertent loosening of threaded fasteners. They are also used in certain critical heavy-duty highway truck applications, such as inside transmissions and drive axles, and sometimes inside engines. When properly installed, a length of so-called mechanic's wire is inserted through drilled holes in the threaded fasteners, and then around or through some other fixed object, and firmly twisted around itself to secure it in place and prevent rotation of the fastener.

So... how does that apply to electronics? Simple! A properly twisted bifilar wire pair is twisted at a rate of eight to ten twists per inch. It is quite a challenge to do so freehand and yet maintain the proper twist rate and symmetry. The safety wire pliers, which are designed for use in twisting two or more wires around each other, make this task almost foolproof. The task involves gripping the ends of the wires that are to be twisted in the jaws of the pliers and then to lock the pliers closed by squeezing the handles together and sliding the catch bail towards the end of the handle. Then, with the opposite end of the wires firmly secured in a vise, simply pull on the knurled knob on the end of the center stem of the pliers. This will cause the pliers to spin, which will in turn impart the requisite twist to the wires. Release the knob to reset the twist action, and repeat as necessary until the desired twist pattern is achieved. The result is a perfectly uniform twist pattern for the length of the wires. A squeeze of the handles will release the lock and free the twisted wire from the jaws of the pliers.

The set of safety wire pliers illustrated at Figure 1 is a two-piece set including a six-inch pliers and a nine-inch pliers. For those who do not want to purchase the set, each pair of pliers is available individually.

This set is available online from Amazon, at a price of \$25.99 (USD) plus shipping if you are not an Amazon Prime member. Of course, the government has to get its share, so tax will also be applied. Point your browser to <https://www.amazon.com/dp/B09KX91QW8> if you want to investigate this item for yourself.



Figure 1 – Safety wire pliers set