

SAFETY WIRING

By Roy Vaillancourt

"BIG IS BETTER"!!! We have heard this phrase for some time now.

At first most of us were very skeptical of the idea of models becoming bigger and bigger. Now that some time has passed and we have all seen the light, bigger and bigger models are appearing at many of the local flying sites around the world.

As these miniature aircraft become bigger and approach the size of full-scale aircraft we should give careful consideration to using full-scale aircraft construction and assembly techniques.

One very important item seen in use on the "real ones" is the extensive use of safety wire. As our models get bigger so do the engines we need to power these mini-monsters. With the addition of more cubic inches we inadvertently introduce some very destructive vibration levels. This vibration has a nasty habit of trying to loosen every nut, bolt or screw on the airplane. To prevent these parts from becoming loose and spreading themselves all over the sky, we can use two methods: 1) Hotstuff or Loctite everything in site, or 2) Safety wire.

Of these two methods each has an advantage and a disadvantage. Hotstuff, etc., tends to make everything stay stuck forever. Which can be good on some things that will never need disassembly, but makes it mighty tough to service things that require periodic adjustments. On the other hand, safety wire is time consuming and sometimes awkward to apply but it is easily removed when its time to service that particular item.

When applying safety wire it is important to keep a few rules in mind:

1. Always install the wire so that a loosening action of the screw, nut, etc. will ALWAYS put tension on the wire.
2. NEVER use safety wire over again once it has been removed. The constant twisting and untwisting of the wire will fatigue it and **cause it to fail** when you least expect it.
3. Try to avoid wiring 4 or more units with the same strand of wire.
4. When twisting the wire, avoid pliers marks on the wire or twisting the wire too tight between units.

In full size applications, safety wire is usually made of stainless steel or a high temperature alloy such as Inconel. For our applications, stainless steel or copper wire is most adequate. The easiest tools to use for the installation and twisting of the wire are needle nose pliers or medical hemostats. Of the two, the hemostat allows you to work in tight areas very freely and quickly without too much fuss. So if you are planning on using a Quadra, Kioritz, Kawasaki, Sachs or

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some other large prop swinger on your next model and will be using nuts, bolts and screws to hold everything together, I strongly suggest you try some of the methods shown of safety wiring.

After all, Safe flying is NO accident!

All of the examples can be used on hex head bolts or standard machine screws (with either standard or phillips heads) or socket head cap screws).

As an alternative to wrapping wire around a unit as in Fig.1, wire may be crossed through units as in Fig.5. In the case of castellated nuts, or where clearance is a problem, wire may be wrapped over the unit as in Figures 6-7-8.

