

It's Solder Time for Switches

SOLDER LUGS MAKE A RELIABLE AND PERMANENT CONNECTION
BETWEEN THE SWITCH AND THE WIRE

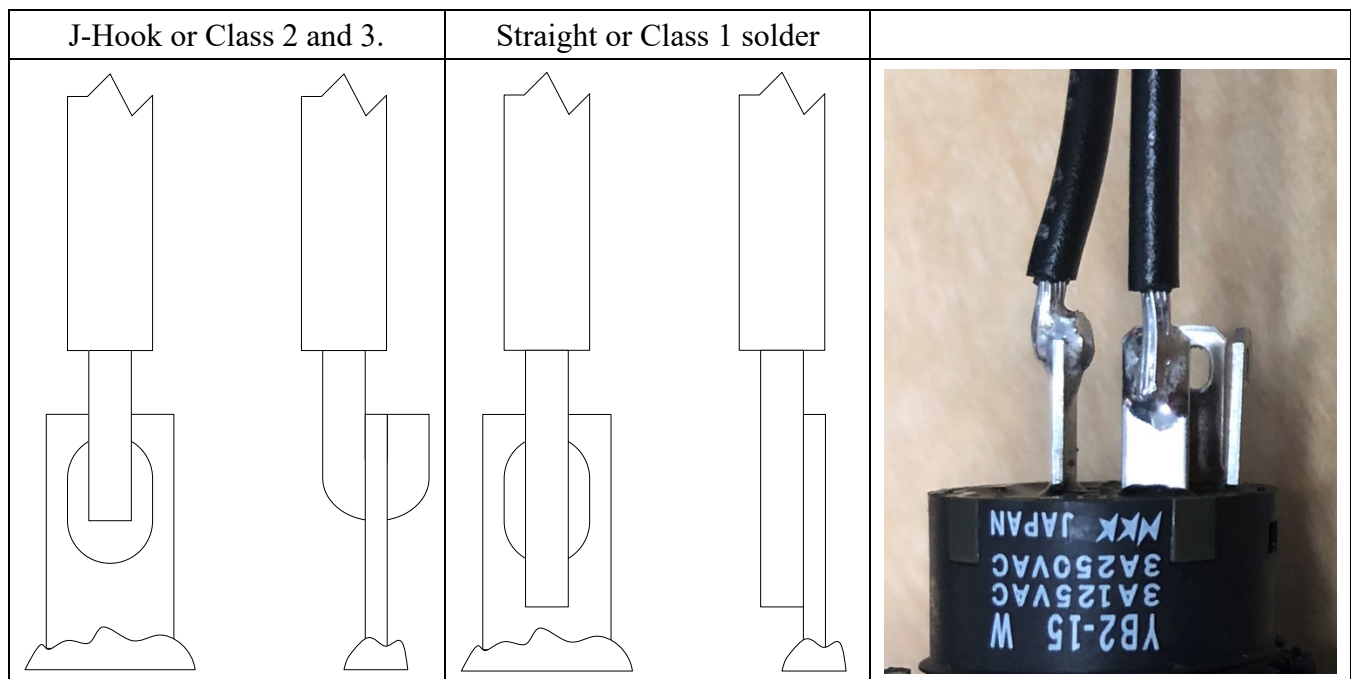
NKK SWITCHES

Switch and Solder Lugs

Most switches require soldering. If they are PCB mount that is the only real option for assemblies. For wire harnesses there is the screw lug, the quick connect blade, and then there is the solder lug. They each have their pros and cons and what is ultimately best for a given application is up to the designer.

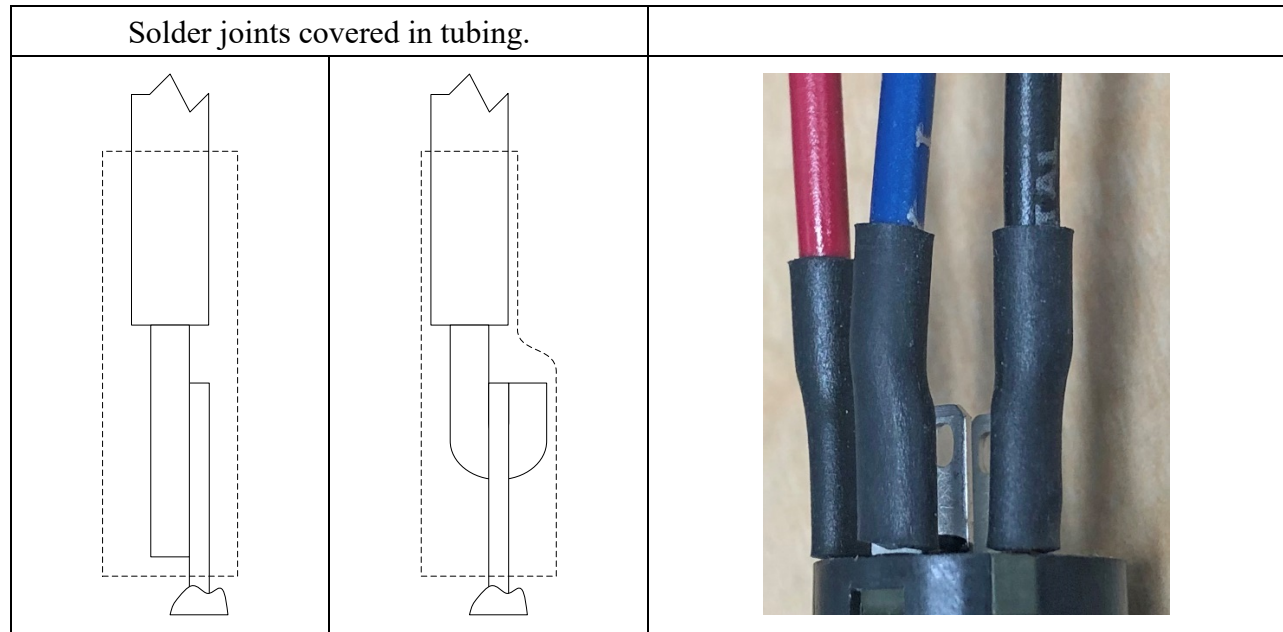
What makes solder lugs so appealing is that they are generally easy to solder during assembly and they are permanent enough to keep the switch/wire harnesses together for the duration of the product's life.

There are two common types of soldering that are available; the straight (or Class 1), and the J-hook (Class 2 and 3). The solders all start the same way by stripping the insulation off the wire and then tinning the conductor.



The straight solder is quick to do and does a reasonably good job of holding the wire to the terminal. The J-hook takes more time as the wire must be bent and then threaded through the hole. This limits the size of the wire that can be used as the wire has to fit through the hole after being fattened by the tinning. The advantage of the J-hook is a stronger bond to the terminal. It is used for higher-end applications where a failure could be critical.

Once a terminal is soldered it can be covered with shrink tubing. This is to protect the solder joint from debris that could lead to corrosion or even shorts. The shrink tubing also works as strain relief by reducing strain on the solder joint and transferring it from the wire to the terminal.



It is not always possible to add shrink tubing, like when the wire is coming out sideways to the terminal or there are two wires attached to one terminal, both not uncommon cases. Also, it is not uncommon for the shrink tubing to not reach the bottom of the terminal due to the shape of the terminal or the switch bottom around the terminal. For most applications this is not an issue. Many more applications don't require shrink tubing at all. For further protection the bottom of the switch could be covered in epoxy, but this can get complicated as the inside of the switch has to be protected against epoxy ingress.

Conclusion

In conclusion, for your next application, remember the solder lug is a good way to make a reliable and permanent connection between the switch and the wire.