

PERMANENT TINNING OF SOLDERING IRONS

By PETER J. PROFERA

THE corrosive action of some soldering fluxes, and the solvent action of molten solder on copper soldering iron tips combine to eat away the working surface of the tip until it finally becomes useless for further work. When this occurs, the tip has to be retinned.

Silver solder has a far higher melting point than tin-lead solder and can be used to make a permanently tinned tip. This solder is the type used for brazing, not the type intended for use in printed-circuit board repair, and can be obtained from either plumbing or jewelry supply dealers, or ordered from a metal and alloy supply house.

This permanent tinning operation is based on the fact that conventional tin-lead solders (the so-called soft solders), melt at temperatures between 360 and 750°F (depending on the ratio of tin to lead), while silver solder melts at about 1300°F.

The first step is to remove the tip from the iron and file its working faces until they are bright and shiny and free from pit marks. Wrap the tip shank in a piece of asbestos cloth (available at electrical supply houses) and fasten the combination in a vise. The asbestos wrapping acts as a heat insulator to prevent rapid dissipation of the heat applied to the tip during the tinning process, and to keep the temper of the vise jaws from being destroyed by the high temperature attained by the tip during the tinning process.

The flux to be used with the silver solder is ordinary borax, available in powdered form at any drugstore. Mix a little of the powder with water until it acquires the consistency of a paste, then brush some of the paste on the surfaces of the tip which are to be tinned.

Heat the tip with a blow torch until it becomes hot enough to melt the silver solder. Dip one end of a silver solder rod into the borax paste and then melt the solder onto the tip until a good coating covers the desired areas. After cooling, a few strokes of a file will render the coating smooth and uniform. Be careful that you don't file through the coating and expose any of the copper underneath. If you do, you will have to reheat the tip and recoat the exposed area.

To complete the job, replace the tip in the soldering iron, plug in the iron and when it has come up to operating temperature, tin the tip with conventional tin-lead solder. The tip is now permanently tinned and a wipe with a clean cloth is all that will ever be needed to make the tip ready for use. ▲