# CRASH COURSE

Microcomputers and hi-fi audio have many things in common. To the user there is a further — and often annoying — point of similarity: the high cost of installing small ancillaries and accessories. This series starts with soldering, to enable the complete beginner to do for himself those little jobs that otherwise might cost pounds.

Soldering, like brazing, is a method of joining two metal objects together by means of a soft (hence, easily melted) metallic alloy; lead and tin are used for electronics work. The objects to be joined are themselves heated to a temperature higher than the melting point of solder (280˚C/535˚F), solder is applied to the components, they are brought into contact, and the heat source is removed. As they cool down, the solder solidifies and the joint is made.

A soldering iron applied directly to a stick of solder will melt it almost immediately. The hot solder will cool down almost immediately on coming into contact with the cold component. The result is known as a 'dry' joint. At best, it will not hold together. At worst it will make a very poor connection, perhaps even allowing an intermittent flow of electricity. There is only one way to prevent this imperfect joining: heat the component until the solder melts on contact.

Useful Vices

One of the reasons why computers are part of our everyday lives is their tiny size. Their component parts, then, are so small that working with them can be awkward. There are a variety of lightweight vices and grippers available at reasonable cost. If you find the grip insufficient, try making up sleeves of masking tape, sticky side out, to slip over the forceps-like jaws
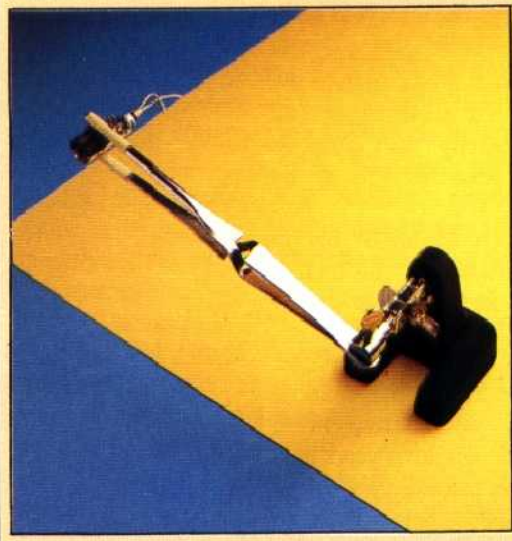
Irons In The Fire

It is important to remember that many electronic components are sensitive to overheating. The answer to the problem this poses lies in the choice of soldering iron, the size of its tip and the diameter of the solder used. For general purposes, such as making up leads and connectors, this choice is less crucial — a 15 or 25 watt iron and multicore solder of around 1.5mm are adequate for most jobs and at the same time slow enough in operation to be safe with delicate components

Cable Stripping

Whenever cables have to be used, the first necessity is to strip off the insulation and covering neatly and cleanly. Simple cable strippers such as the one shown here cost very little, and can be preset to a given cut depth, removing the insulation cleanly but leaving the cable itself intact

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