

Surface-Mount-Device Repair

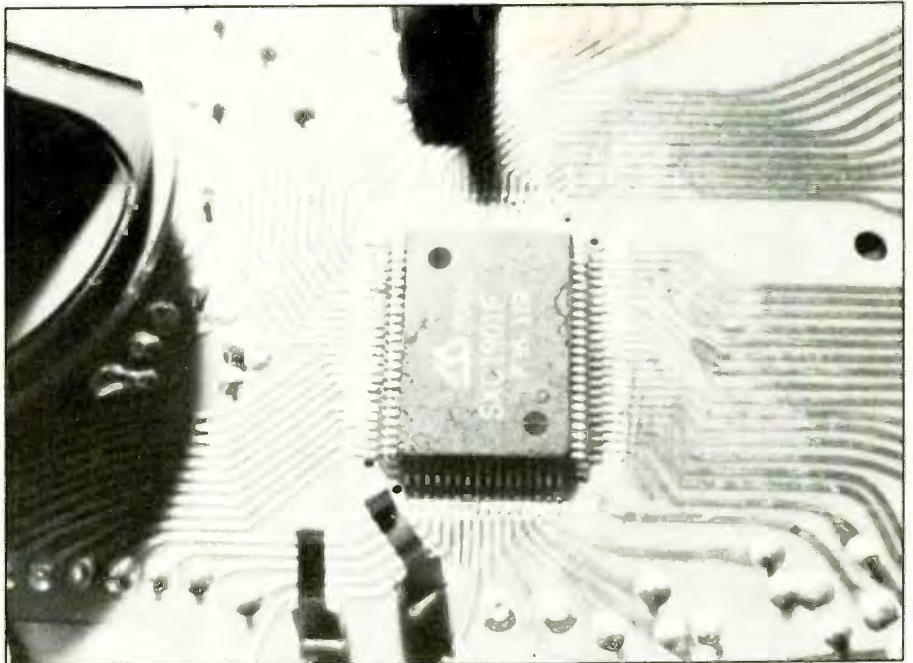
How to remove flat-packaged SMDs using soldering tools

By Victor Meeldijk

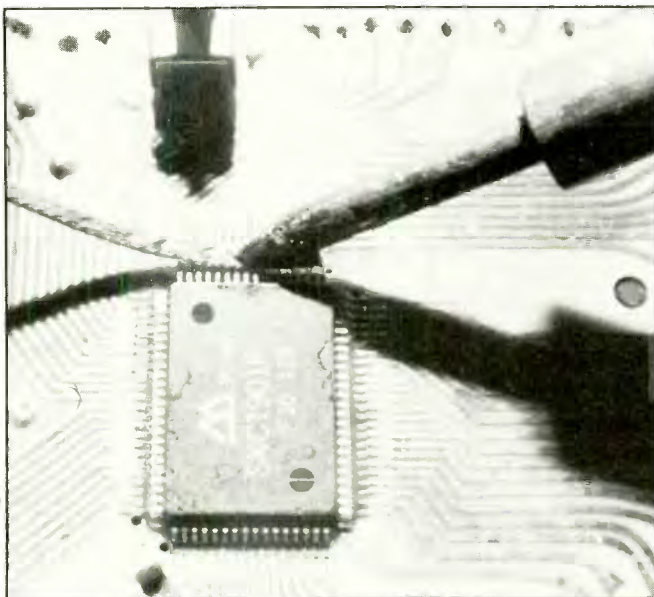
In a manufacturing facility, replacement of surface-mount integrated circuits, such as the 80-pin flat package pictured, would be accomplished with either a conduction soldering iron, which heats all soldered connections at once and lifts the part up with its tong-like tips, or a convection soldering machine. The convection uses low-pressure hot air directed at both the top of the component and the circuit card's underside. When all connections are molten, the device is lifted off the pc board using tweezer tongs.

While these are rapid and efficient methods for production work, such repairs can be accomplished using common soldering tools for occasional SMD removal.

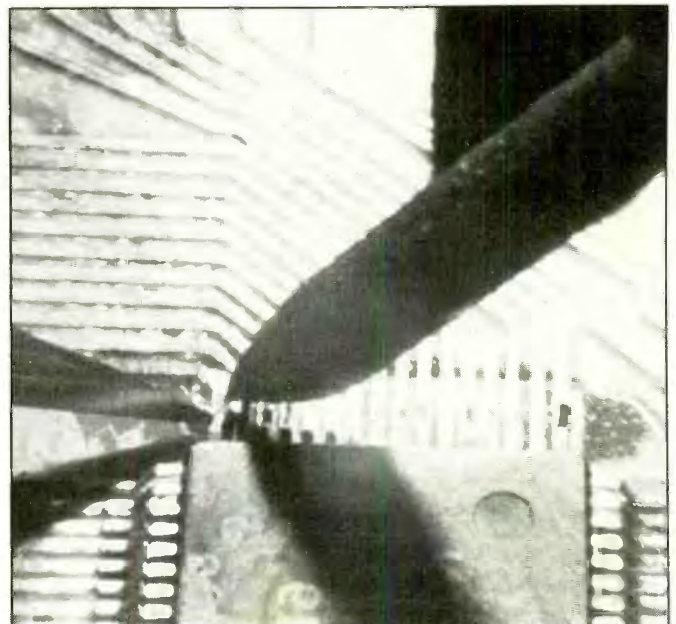
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An 80-pin surface-mount flat package device to be replaced.



Use desoldering braid to remove solder from all device connections. Be sure to employ a grounded soldering iron and wear an ESD wrist strap while doing such work to prevent electrostatic damage to the IC.



While heating IC connections with a soldering iron (left), free them from the circuit card by using a sharp-pointed hobby knife.

Surface Mount *(from page 53)*

Step 1 in the repair process is to remove most of the solder on the IC connections. (*Caution:* Prior to doing repair work, make sure that your soldering iron is properly grounded and that your electrostatic-discharge control wrist strap is properly connected.) Using a soldering iron and desoldering braid, slowly remove the solder from connections on all sides of the IC, as illustrated.

Next, using a fine-pointed hobby knife and a cone-tip soldering iron, gently free each IC connection from the circuit card. Once all connections have been freed, the IC can be removed.

When replacing the surface-mount IC, first align the IC's leads with the printed-circuit card traces. Holding the IC in place with your finger, solder a lead at each corner of the device to the board's pads. This will hold the IC in place until all connections are soldered.