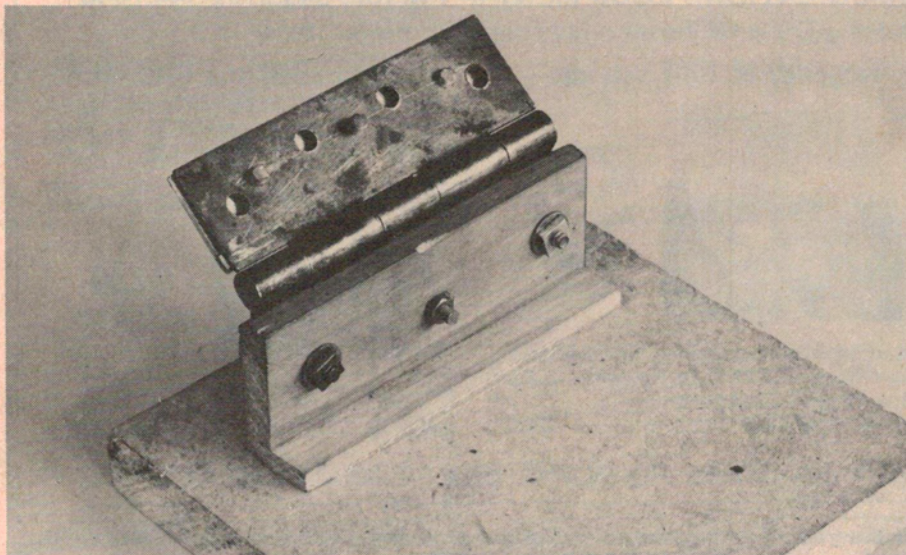
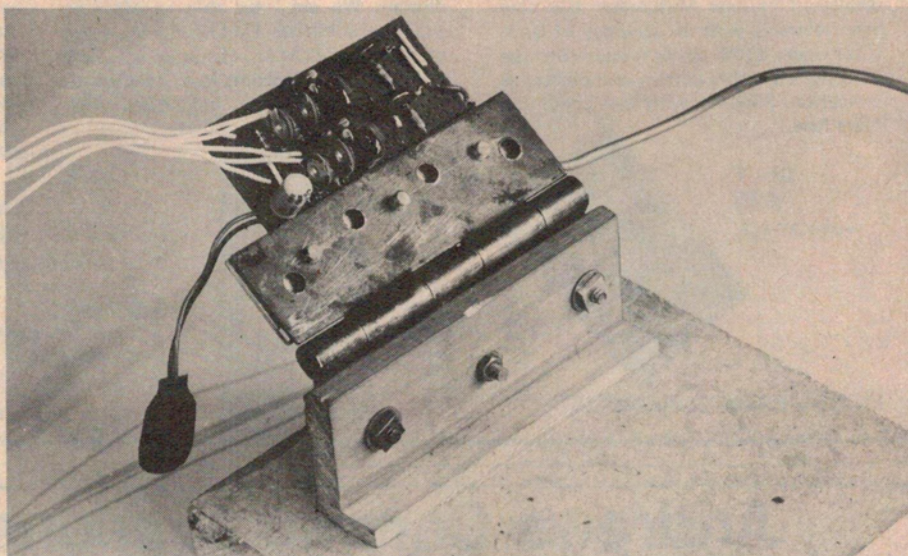


The spare hand

A.J. Lowe

THIS IS one of those gadgets that, once you've made it, you'll wonder how you did without it! It is a simple, very cheap circuit board manipulator, used while fitting and soldering components into a pc board or while testing or fault-finding a board.

The completed Spare Hand with a project securely held and tilted into the 'up' position.



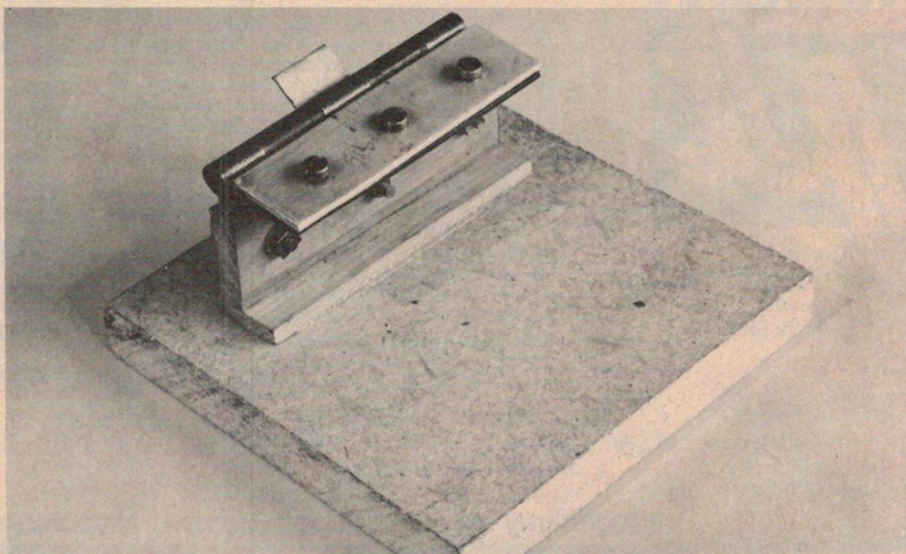
The accompanying photos show the "spare hand" in the up i.e. 'load components' position, and — minus the circuit board, in the down, or 'solder' position.

The base is a 150 x 150 mm block of 20 mm particle board. The support is a strip of 12 mm timber about 45 mm high and 110 mm long. This was glued in the position shown and reinforced a little with a small strip glued alongside.

The top rear edge of the support is chamfered (see the drawing) to accommodate the hinge barrel.

The 'works' is simply a 100 mm butt hinge — the heavier the better, with wings about 35 mm wide (to the centre line of the hinge pin) and a 'gripper'

General view of the unit in the 'down' position with the 'stop' clearly shown.



attached to the moving wing of the hinge by three clamping screws tapped into the wing.

The hinge is affixed to the support by two bolts so that the moving wing can sit firmly on the top of the support in the down position.

The gripper may be a strip of aluminium (that's what I used in the prototype), brass or steel, the same length as the hinge and 28 mm wide — nearly the width of the moving wing. The strip is actually a shallow angle — see the drawing, so that when the three screws are tightened, the gripper pivots on the short arm of the angle and grips along the front edge. The gripper can be cut from angle stock or fabricated from ▶

General view of the unit in the 'up' position.

short circuits

two strips as in the prototype. The depth of the inside of the angle must be slightly more than the thickness of the circuit board — about 2.5 mm is deep enough.

The screws were tapped into the wing of the hinge in positions to avoid the existing holes in the hinge, and to give a good grip on the circuit board. In the prototype the centre line of the screws is 10 mm back from the front edge of the hinge. The outer edge of the gripper is made to align exactly with the outer edge of the hinge.

The stop which limits the backward movement of the hinge is simply a strip of aluminium about 12 mm wide cut and bent to a suitable shape and bolted through the hinge and support.

If you have a hinge handy — make one of these right away, it'll take only an hour, and you'll be glad you did.

If you use the spare hand for testing a circuit, a strip of plastic under the gripper will prevent short circuits.

For those who make large boards, the spare hand could be increased in size with two hinges attached to the support, but make sure their axes are in line. ●

