

# Built-up VEE SUPPORTS

**I**N general workshop practice, there are so many operations needing V-support of the work that the standard equipment of V-blocks-intended mainly for use on surface plate or drilling machine--cannot meet all demands.

Unless, therefore, one's efforts are permanently restricted to a narrow field, the time arrives when one is forced to improvise, adapting such ideas as may be available--original or ready-made--to the exigencies of the moment.

Work does vary enormously, and with it problems of support. Often, too, there are allied questions of precision, time and cost--precision naturally being to the standard

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necessary, and time and cost preferably each at a minimum.

The problem may be to set up firmly an unusually large, long or heavy part; a shaft which is to be straightened by heating, and then tested for truth; or the problem may concern a shaft on which wheels or pulleys are mounted, demanding height for the supports. Again, it may be a shaft with differing diameters that require a difference in height. At the other extreme, one may be dealing with pins or round components so small that they are lost in ordinary V-blocks.

Many problems are solved by using the lathe bed as the base for V-supports. The supports can be built up A from bright rectangular steel and angle iron to the needed height, even to the extent of permitting a shaft to be tested passing over the headstock and tailstock. The two pieces of rectangular material are bolted one each side of the angle iron with a spacing collar between them. They will accurately support, say, a stationary engine crankshaft and flywheel, or a boiler barrel for marking off. If one leg of each support is adjustable horizontally, the height of the V can be varied; and if the hole in the angle iron is slotted for adjustment across the bed, a

precision set-up can be obtained in relation to the lathe.

A cheap, quickly-made V-block (to save a better one, for example, in general drilling work) is obtained by bolting bright rectangular steel to the sides of angle iron B. An alternative, is to bolt or rivet three pieces of angle iron together, thus making a continuous or full-length V which is suitable for supporting short work-pieces. Size can be varied by the choice of angle iron used.

A need is sometimes felt for V-supports c, that can be used in conjunction with the headstock and tailstock, and speedily set up and aligned. Here, two flat plates, each with a V, are attached to the ends of mandrels by nuts, one to fit in the tailstock barrel, the other to be gripped in the chuck. This can be a four-jaw independent type set with two of its jaws vertical, two horizontal, and held by engaging backgear. A square on the lathe bed will bring the edges of the plates vertical, and the chuck jaws can be manipulated to true the work. Removing the work, disengaging the backgear, and turning the chuck are necessary for height adjustment until a setting is obtained at which adjustment of the top jaw alone is sufficient--unless, of course, a spanner is available for the bottom jaw.

Back on the drilling machine, a light flat-based V-block can be very useful, built up from flat plate and two pieces of angle iron. One piece can be brazed or welded, and a parallel bar can be used for height setting D. After clamping, the other angle is then brazed or welded.

The problem occasioned by very small parts can be solved with a support consisting of a plate base to which thick strips or shallow blocks are bolted E. They may be square-edged or chamfered, and set for gap using a parallel rod between them. Tiny pins can be centre punched and drilled without difficulty.

Equally suitable for small work, and providing precise location for testing purposes, is a support built up of two rollers and endplates with bolts and nuts F. The rollers may touch or may be spaced with a parallel block.

