MOUNTING ANGLE PLATES

BY GEOMETER

IN LATHE WORK, an angle plate mounted on the faceplate is the means of setting up types of components which have flat bases or sides but which cannot be conveniently held in a chuck or attached direct to the faceplate, In effect, the angle plate provides a fairly extensive platform on which components can be stood and clamped, at the same time with alignment assured in one plane- often an important factor.

Frequently, some initial work is required on components to prepare flat surfaces to stand on the angle plate. In production engineering, components are often first planed or ground on bottom or sides. But in model work, careful filing to remove major roughnesses is satisfactory, followed if necessary by packing up on the angle plate to avoid distortion.

Alternatively, the initial operation may be performed with components held in the chuck, or even clamped direct to the faceplate. And of course, once a surface has been machined from an angle plate a component can always be turned on to it for machining another at right angles.

A typical mounting for a small angle plate is as at ***A,*** left, where alignment is obtained from the two outside faces of the plate, one abutting to the faceplate, the other forming the platform for components-the orthodox way, which is quite satisfactory where off-sets from the centre are relatively small. Space to swing such an arrangement is available on many lathes by provision of a gap in the bed.

The orthodox way of mounting an angle plate has, however, a number of serious drawbacks and only one feature slightly to recommend it, which is that the whole width of the platform is available to mount components. From every other aspect the mounting at ***A,*** right, is superior and is generally adopted on toolroom lathes with straight beds.

With the orthodox mounting, the angle plate must necessarily be small in relation to the diameter of the faceplate, which in itself can prevent components being set up; and as the angle plate is moved away from the lathe centre there is a reduced hold on the faceplate and the corners seriously overhang,. as at B, Y-Yl. Moreover, there is an increasing problem of out-of-balance, which always demands a balance weight.

With the reversed angle plate mounting, however, a much larger plate can be used without the corners overhanging; the plate may often be twice as long as a normal type and is normally about three-quarters the diameter of the faceplate.

A very firm mounting can be obtained as at ***B,*** and the back of the plate over the centre line helps to act as a counterbalance. Generally, with a reversed mounting, a larger object can be swung on a straight bed lathe than with an orthodox mounting on a gap bed type.

A reversed angle plate only requires a simple wood pattern to obtain a cast-iron casting, which then has to be planed on the back and the mounting face-not expensive work to have done out. Alternatively, for small lathes, two pieces of flat steel plate could be electrically welded at right angles.

Setting of any angle plate from centre is checked with a component straight-line marked the distance from base, as at ***B,*** X-Xl. Clamps hold the component, though these are not shown. A piece of flat plate across the bed supports a scribing block for its pointer to be adjusted to the line, when this is horizontal. Then, rotating the faceplate half-a-turn, the line should recheck the same;. otherwise, the angle plate needs adjusting.

Components may be clamped in various ways, using a straight-across bar, as at C, or separate clamps, as at ***D;*** and packing or reaction blocks, instead of being loose, can be fixed to clamps by a length of studding or a rivet, as at ***E. Also,*** for convenience, clamps can be slotted.

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