

SETTING VERTICAL SLIDES

AN IMPORTANT ASPECT of the lathe, from the amateur's point of view? is that with the minimum of equipment it can be employed for light milling operations.

Taper-shank end-mills can be mounted in the spindle, while parallel-shank mills and facing cutters can be held in a chuck. Using a stub mandrel in a chuck, or a long mandrel with one end in the chuck and the other by the tailstock, various types of circular cutters can be run for sawing, slotting and similar operations.

For very simple operations, the work can often be clamped to the top-slide and traversed past the cutter by cross-slide and longitudinal feeds. In some instances, the topslide can be removed and an angle-plate substituted, thus providing a larger surface for mounting. The most versatile fitting, however, is a vertical slide which can be fitted in place of the topslide.

Given such a slide, the basic accuracy of the work produced on it will largely depend on the setting. Usually, the bases of slides are graduated to provide approximate settings, but these are not nearly accurate enough and should not be relied upon—except, perhaps, for very simple operations.

For more precise settings, involving normal parallel and right-angle faces, the face of the slide must be adjusted to correspond with the cross-slide or saddle feed. This can be done either with a round-ended pointer, or preferably with an indicator gauge to show errors in setting by the movement of its hand.

Referring to diagram A, showing a plan view of a slide set at right-angles to the lathe axis, a round-ended pointer could be mounted on the driving plate, and the slide fed near to it. The gap between pointer end and the face of the slide should be equal across the face as the slide is fed, and may be checked by observation or using feeler gauges.

If an indicator is mounted as shown, any error will be revealed as a variation in the reading of the indicator, and when the reading is steady the slide is correctly set. With either method, should an error be shown the slide must be suitably re-adjusted.

Referring now to diagram B, where the slide has been turned through 90 deg., a round-ended pointer or indicator can be mounted on a mandrel, held one end in the chuck, the other supported by the tailstock. Similar principles of setting are then employed in conjunction with saddle feed along the bed.

These two basic settings cover the majority of set-ups; and for adjusting work true on the slide, the same principles apply. Thus, should it be required for the edge of a component to run parallel with the lathe bed, the round-ended pointer or indicator is moved into a vertical attitude.

With crossfeed for diagram A, or saddle feed for diagram B, a level setting should then be obtained. If feed is to be from the vertical slide itself, the pointer or indicator should be set to the edge of the work, and the

gap or reading should be uniform as the work is raised and lowered. In every case of inaccurate setting the work must be adjusted on the slide.

In regard to accuracy of the slide itself, any error shown by the table against a fixed indicator when the vertical slide is operated would suggest an error in the table. This method, however, would not reveal an error in the guideways of the slide. To do this, a test would have to be made, either on the lathe or a surface plate, against a true angle-plate, as at C, or using a test mandrel, as at D, machined between centres. An inaccurate slide can be packed at its base.

The setting of an angle-plate can be checked as at E, with saddle and cross-slide feeds. Inaccuracy on the plate can be corrected by packing, and the other way by suitably adjusting the plate on the slide table.

