Machining SPLIT BEARINGS

DIAGRAM A shows split bearings of two types which readers of **ME,** with their wide-ranging interests, may have to machine in extreme sizes. Under different names, they are used in a variety of engines and machines.

The flanged pattern at Al are the old-time brasses, in which the journal of a shaft runs direct. They may also be lined with whitemetal or babbit metal, as is usual when they are used in vintage car engines.

The parallel type at A2 consist of steel shells lined with whitemetal, or harder alloy for heavy duty. This pattern may be called shell bearings, thin-wall bearings, or simply liners. They are always circular outside to fit in accurately-machined housings or the big-ends of connecting rods. On the other hand, the flanged type may be square or rectangular outside-1 am dealing only with those that are circular

Methods of setting-up to machine split bearings are broadly the same for all sizes, for it is essential to maintain accuracy. The joint line of the halves must be on the diametral line; the outside must be circular, and the bore concentric with it.

Now consider possible differences in size. You can make split bearings, say 3/32in. in the bore, for a miniature model. You may need bearings for a vintage car engine, when none can be bought, although the crankshaft can easily be reground true. The job may be bigger still if you are restoring some superseded prime-mover for posterity. For these purposes, old bearings can be relined with whitemetal and then machined.

To make small split bearings, you can use drawn rectangular brass, holding two pieces together in the four-jaw chuck with the joint line on the spindle axis. First, each piece should be faced in the chuck. Then the two must be filed smooth and flat on their abutting faces.

To centralise them for machining, use the point of a height gauge or scribing block at centre height. Test along the joint line, rotate the chuck half a turn, test again-and if there is an error, eliminate it by adjusting the chuck laws.

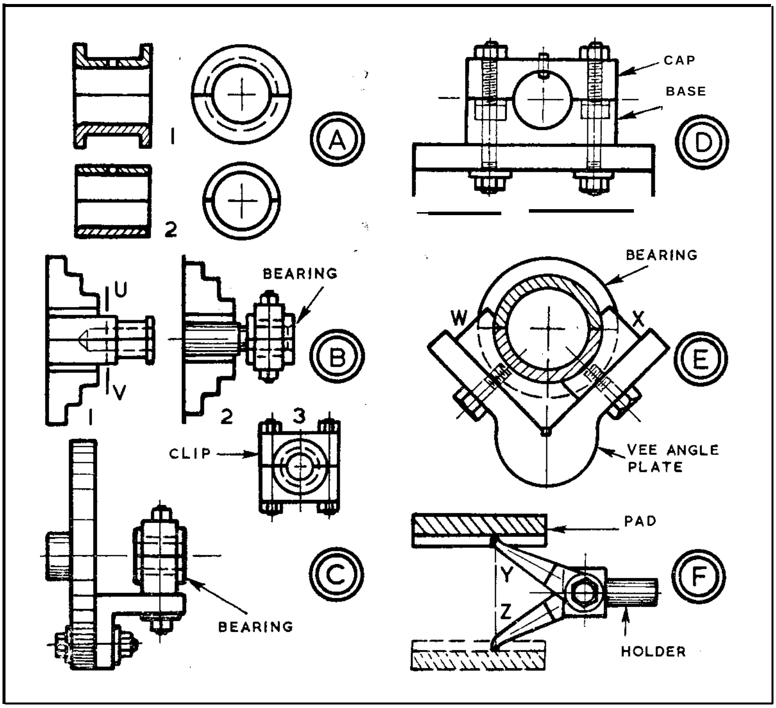
Begin machining by facing the end of the pieces. Then centre them from the tailstock, drill undersize, and finish the bore with a drill, a reamer, or a boring tool. Chamfer the end of the bore with a boring tool or hand scraper. Turn the outside with a turning tool, reduce between the flanges with a parting tool, and cut off as at Bl on line *UV* with a hacksaw.

To face the bearing halves to length, and chamfer the other end of their bore, mount them on a mandrel in a chuck, as at B2, with a clip B3 round the outside. Make this clip by boring two pieces of flat material in the independent chuck, after bolting them together.

Diagrams C and *D* show how split bearings can be set up from their outside diameters to finish the bores. You may prefer this way to the one just' described. On the other hand, after remetalling old bearings, you are forced to adopt it.

Two pieces of rectangular metal are used, one for the base and the other for the cap. Aluminium alloy is best to machine quickly. Fix the base bv long studs and sunken nuts, and fit-the cap by other nuts. Adjust the angle plate so that the joint line is at spindle axis. Drill and bore the pieces, and fit a peg or dowel if one half bearing has a locating hole. Lightly file along the joint line of the cap to hold the bearings securely.

Diagram *E* shows how I once set up a large flanged bearing on a *V* angle plate. Two aluminium blocks, WX, were used, and were removed to fit the bearing, which was clamped with a long U-bolt. Each block was fixed by two setscrews,



and machined to radius with a boring tool, after roughing on a shaper. I calipered the size across the diameter.

If ever you have to machine a single pad to radius, you can check it as a diameter (see F). Turn a holder from square material for the tailstock. Drill and tap it for screws to hold a pair of legs YZ. Bend these so that the ends are on a plane, and set each to the pad, turning the lathe. Measure over their ends to obtain the diameter. I!I