

Overcoming difficulties in assembly

By GEOMETER

THERE are many reasons why difficulties occur in assembling parts and a variety of ways of overcoming them—even allowing that the solution to a single problem can be extended in principle to resolve several others.

Thus, grease, which is used to hold balls in cups or raceways, will also secure split taper collets to valve stems during assembly, and may be used to hold a screw to a screwdriver, or a nut in a box spanner.

On similar occasions, when something needs to be held or temporarily held in place, the problem is solved through the stickiness of grease. At times it can be used on gaskets as an alternative to jointing compound. At other times, it will hold small components in position and, when they are fixed, can be wiped off with rag or cleaned off with a small brush dipped in petrol.

Ordinary grease should not be used on rubber. There is a special sort for that—rubber grease.

In some instances, the smallness of parts makes handling and assembling difficult. So every model engineer's kit ought to include one or two pairs of tweezers.

No less useful is a good magnifying glass which can help in the handling of tiny screws. Shortening tiny screws may easily burr the end threads and obstruct their entry in tapped holes. The fault is obvious—when it can be seen. Usually it can be corrected with a sharp blade run in the thread of the screw and off the end, clearing the burr.

Many assembling difficulties can be overcome by using adhesive tape. **Two** narrow strips, placed one each side of a screwdriver blade, will mount a screw, as at A1. The screwdriver should be upright in the vice and the screw on its end before the strips are pressed on. A single strip over the end of a bolt will hold it in

place while a nut is fitted on the other side of an assembly. On some jobs, this can save the help of an assistant. Alternatively, a nut can be kept in position, as at A2. It is located to the hole by a piece of stud (cut-off screw), which can be removed when the nut is fixed. Then the component can be fitted, as at A3.

On occasion, when a bolt has to be tightened, a spanner can be fitted on the nut, then wedged to an adjacent component and held by tape, as at B. This allows one to work single-handed on the bolt without the spanner dropping off the nut.

Adhesive tape is extremely useful for securing narrow cork gaskets in place on long engine covers. Often these gaskets become warped and, in assembling, slip from under the flanges of covers. Then oil leaks develop. The difficulty is overcome with a few strips of adhesive tape, spaced as needed round the cover, each piece being wrapped over the gasket, as at C.

The fitting of piston rings in machined grooves is a tricky job. Difficul-

ties increase as the radial depth becomes a larger proportion of the piston diameter, since they must be expanded further for fitting. In this respect, model rings are worse than commercial sizes. One ring, however, can be fitted from the top of a piston, and when there are two or more, three strips of shimstock can be used to bridge grooves, as at D. The difficulty encountered in putting a piston with rings into a cylinder can be overcome by using a metal band, closed by a screw, to compress the rings.

At times it is useful to compress a coil spring preparatory to fitting: This is done in the vice, as at E, then clips are fitted which can be prised off when the spring is in place.

Slight malalignment of holes in a structural assembly is sometimes overcome with a taper punch, but it is not advisable as a method to align a located bush, as at F. To ensure this enters truly, a locating line should be scribed on its side, and a corresponding line on its housing.

