NASA TECH BRIEF

Removal of Flowmeter Bearings from Blind Cavities

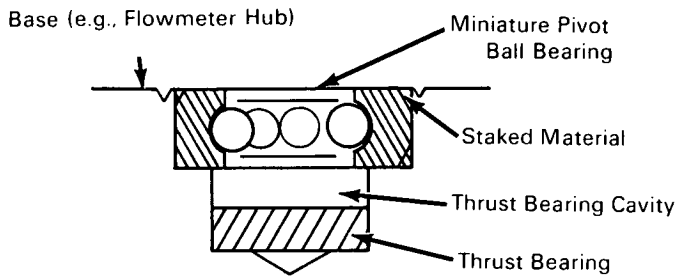

Figure 1(A).

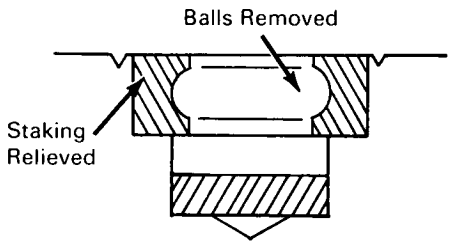

Figure 1(B).

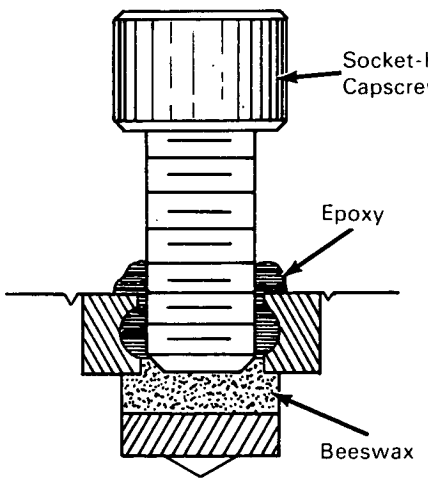

Figure 1(C).

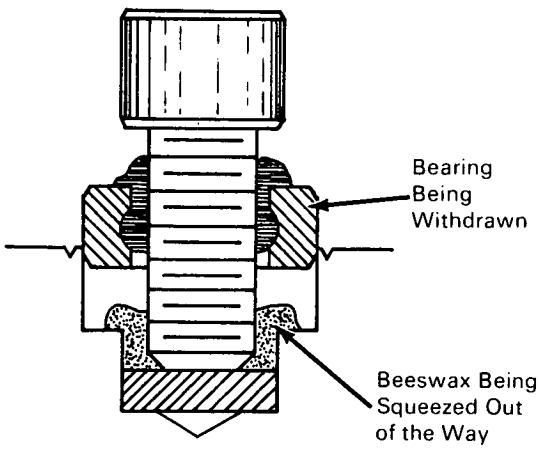

Figure 1(D).

The problem:

Removal of bearings installed in blind holes (e.g., in turbine-type flowmeters) is difficult and frequently causes damage to the bearing mount.

The solution:

The bearings can be removed by the application of a simple hydraulic principle using beeswax in place of a liquid.

How it's done:

The procedure is illustrated in Figure 1A through D. Figure 1(A) shows a bearing set installed with the base staked to hold in the bearing. Figure 1(B) shows the staking removed (by hand graving) and the worn balls removed (snapped out). Figure 1(C) shows a beeswax dam placed below the bearing to seal its back surface, and a socket head cap screw embedded in a

(continued overleaf)

strong epoxy. The bearing is cleaned to provide good bonding. The screw is coated with a releasing agent. Sufficient time is allowed for the epoxy to harden (usually overnight). Figure 1(D) shows the bearing being withdrawn. The screw is turned and as it travels down, the beeswax is pressed away from the thrust bearing. Continued twisting jacks the bearing race out, due to the axial force developed between the screw and the strong epoxy. After removing the bearing race, a center punch blow on the thrust bearing shatters the bearing, and the small pieces can be removed.

Note:

Requests for further information may be directed to:

Technology Utilization Officer
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Reference: B70-10227

Patent status:

Inquiries about obtaining rights for the commercial use of this invention may be made to NASA, Code GP, Washington, D.C. 20546.

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