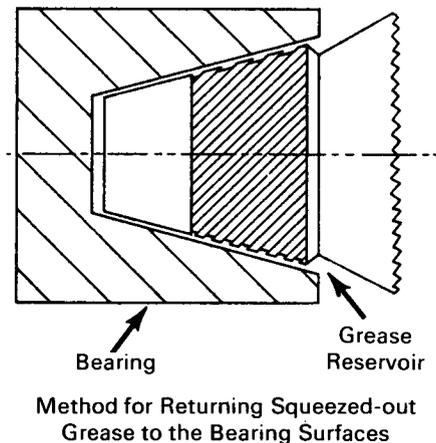


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Technique for Improving Hydrodynamic Gyro Bearings



Conical or spherical, spirally grooved grease bearings have been shown to be superior to ball bearings in applications requiring extended lifetime and high precision. This information should interest designers and manufacturers of equipment requiring long life and high reliability in bearing structures.

Two methods for cutting grooves in the bearings are available: etching the surface using epoxy as a masking material, or placing the bearing in a lathe and cutting the grooves with a tungsten carbide tool.

The bearing is designed for use with a heavy oil or light grease lubricant. Because a nonoperating bearing tends to have its lubricant forced out by thrust loads, an inclined surface is machined inboard of the grooved surface. The indentation and inclined surface provide a reservoir for the lubricant, and when rotation begins, centrifugal force returns the lubricant to the grooved area.

The main advantage of this type of bearing over ball bearings is that it is a single unit which maintains complete lubrication. The journal and bearing arrangement with the conical, grooved journal is shown in the illustration.

Note:

Requests for further information may be directed to:
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 Huntsville, Alabama 35812
 Reference: TSP70-10301

Patent status:

No patent action is contemplated by NASA.

Source: J. Burch and P. Broussard, Jr.
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