

Fig. 19. Improved Headstock for Series "S" South Bend Lathe

Circular No. 20-B

Improved Headstock

For Series "S" South Bend Precision Lathes

The New Headstock shown above has been adopted for all sizes of South Bend Precision Lathes. The superiority of the integral type bearing used in this headstock has been proved by seven years of research and experimental work and hundreds of tests conducted by our Engineering Department. More than 30,000 South Bend Lathes with this type of headstock, spindle and bearing construction are now in use.

The Lathe Spindle is made of a special grade of alloy spindle steel. All bearing surfaces, including the tapered hole, are carburized, hardened, and precision ground. The journal bearing surfaces are superfinished to a smoothness of five micro inches (.000005"). The hardness of the bearing surfaces is 56 to 61 Rockwell C.

The Headstock Bearings are unusually large, being of the integral type, and are precision bored and hand scraped to the spindle. This design permits using a large diameter spindle, providing extreme rigidity and reducing the possibility of chatter. Bearings are accurately adjusted at the factory and should require no further adjustment for years. Provision is made for take-up when required.

Large Oil Reservoirs and an improved capillary oiling system provide a complete film of clean filtered oil which separates the rotating spindle from the bearing at all times. As long as sufficient oil is supplied to maintain an adequate oil film, there can be no metal to metal contact in this bearing, no wear and no friction other than the fluid friction of the lubricant. Large oil reservoirs and an efficient oil return system retain the oil so that only occasional replenishing is required.

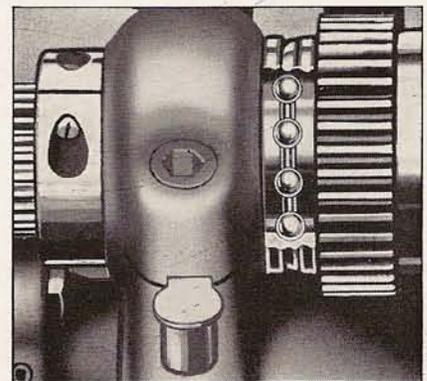


Fig. 20. Ball Thrust Bearing and Take-up Nut, Eliminate Spindle End Play

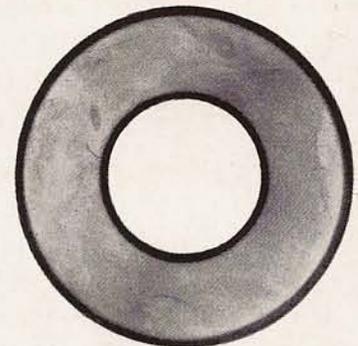


Fig. 21. Cross Section of Headstock Spindle. Bearing Surfaces are Carburized and Hardened to a Depth of $\frac{3}{64}$ "



Fig. 22. Heat-treated Alloy Steel Spindle with Journal Bearing Surfaces Carburized, Hardened, Ground, and Superfinished.

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