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NEW LIMITATION CHANGE

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AUTHORITY

ATD ltr, 2 Dec 1965

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The authors suggest the use of liquid metallic melts as lubricating materials. When salt melts, containing sulfur and chlorine, are used, modified wear-resistant surface layers are formed during the operation of the parts, as a result of friction. This leads to the suggestion that conventional structural and alloyed metals might be used for units operating at high temperatures. Experiments were carried out with a special worm reducer and Wood's alloy (50% Bi, 12.5% Cd, 25.0% Pb, 12.5% Sn) as a lubricant. The bearings in the reducer assemblies were designed in such a manner that the liquid metallic melt greased only the worm thread and the teeth of the worm gear. The bearings were greased with mineral oil. The tests show that the use of Wood's alloy as a lubricant prevents galling of the operational surfaces. The new method will eliminate special devices for the cooling of friction parts in units operating at 500 to 1,000°C and will raise the efficiency of friction pairs. There are 2 figures.