



An Evaluation of High Velocity Wear

By Gregory J. Cameron

Biblioscholar Nov 2012, 2012. Taschenbuch. Book Condition: Neu. 246x189x9 mm. This item is printed on demand - Print on Demand Neuware - The Holloman High Speed Test Track (HHSTT) is a rocket-powered sled track facility used for testing a variety of hypervelocity aerospace applications. The current speed record is 6,453 miles per hour. While this seems fast there are customers at the track that have requirements demanding even faster speeds. Significant research has been conducted in the area of rail gouging as it relates to the test track, and efforts are under way to reduce and even eliminate this phenomenon. Any steps taken in this effort may eliminate catastrophic sled failures caused by gouging, however wear is another damaging issue that needs to be understood. This research evaluates wear in two fashions. First, data from the Dynamic Analysis and Design System (DADS) software, used by the HHSTT to model sled loading and vibration, is evaluated in a theoretical model originating from 'high-speed' pin-on-disk experimentation. The second method evaluates wear by conducting a series of simulations in which temperature, rail geometry in the form of an asperity, speed and rail coating are varied. These short duration simulations are performed with CTH,...



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