

SYSTEM, METHOD, AND PROGRAM PRODUCT FOR CONTROLLING  
COMMUTATION OF DISK DRIVE MOTOR

## ABSTRACT

A system, method, and program product for operating a disk drive motor according to an exponentially decaying commutation curve are disclosed.

The disk drive controller provides commutation timing signals to the motor driver that, in turn, drive the motor. During the first part of motor start-up, the disk drive controller selects external commutation of the motor. Commutation values approximating the first portion of the ideal commutation curve are pre-defined and stored as a look-up table into the memory system. Commutation values approximating the second portion are derived from a linear equation having a slope based on an acceleration characteristic of the motor. If the motor fails to reach the critical BEMF speed, the slope is repeatedly decreased, as necessary, and commutation values are re-calculated for this second portion of the commutation curve until the motor is started.

Fig.5



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