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DRIVE LEVEL ACTUATOR IMBALANCE MEASUREMENT

Abstract of the Disclosure

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The present invention provides a method to determine and to locate the position of the imbalance torque of an actuator in a disc drive. There are several steps performing different functions in the method. The first step of the method performs the function of obtaining a difference in the voice coil motor (VCM) current of the disc drive in the X orientation and in the Y orientation with the VCM current of the disc drive when the disc drive is placed flat. The second step performs the function of obtaining the square of each difference in VCM current. The third step performs the function of obtaining the imbalance by adding the square of the VCM current and subsequent square root of the addition. The value of the imbalance torque is obtained by multiplying the imbalance with the torque constant. The fourth step performs the function of obtaining a division value of the VCM current in the X orientation or in the Y orientation with the VCM current of the disc drive when the disc drive is placed flat. The fifth step performs the function of obtaining the angle between the x-axis and the distance of the imbalance torque of the actuator from the pivot centre and measuring the mass of the actuator. The sixth step performs the function of obtaining the cosine or sine of the angle and multiple either angle with the mass of the actuator. The position of the imbalance torque is located and determined either from dividing the divided value in X orientation in the fourth step with the cosine angle in the sixth step or dividing the divided value in Y orientation in the fourth step with the sine angle in the sixth step.

Figure 7