

MAGNETIC RECORDING DISK DRIVE WITH THREE SENSORS FOR ROTATIONAL AND LINEAR VIBRATION COMPENSATION

ABSTRACT OF THE DISCLOSURE

A magnetic recording disk drive has three vibration sensors mounted to the disk drive base to provide feedforward vibration compensation signals. First and second spaced-apart sensors are aligned generally parallel to a radius from the disk rotational axis to a head position on the disk between the inside diameter position (h_{ID}) and outside diameter position (h_{OD}) for detecting rotational vibration about the disk rotational axis and linear vibration in the cross-track direction. A third vibration sensor is aligned generally orthogonal to the primary axes of the first and second vibration sensors for detecting primarily linear vibrations in the along-the-track or track circumferential direction. The disk drive servo control processor calculates, from the signals from the three sensors, a rotational vibration feedforward signal, a radial linear vibration feedforward signal, and a circumferential linear vibration feedforward signal which are summed with the actuator control signal to compensate for the vibrations.

Fig. 2