

SECONDARY ACTUATOR SYSTEM FOR MODE COMPENSATION

Abstract

A secondary servo actuator system for use in disk drives comprising a controller (100) and two PZT transducers (14,15) mounted on each suspension load beam (16) in an arm assembly (30). When a seek operation is initiated the acceleration of the arms (31-36) generates vibration modes. The PZT transducers (14,15) on an arm adjacent to the target arm sense the vibration motion and provide output signals to the controller (100). The controller (100) filters the signal and generates a control signal for the PZTs (14,15) mounted on the target arm. The deformation of the PZTs (14,15) in turn rotates the arm load beam (16) and thereby adjusts the position of the target head (20) to compensate for the arm (31) motion caused by the vibration modes. The secondary actuator system can be used during the deceleration trajectory of a target head to suppress lower order arm sway frequencies. The millactuator of the target head can also be used to sense the phase and the amplitude of the dominant arm sway mode to enable the deceleration control signal to be applied with a phase relation that suppresses the arm sway mode that was excited upon application of seek servo actuator control.

Fig. 2