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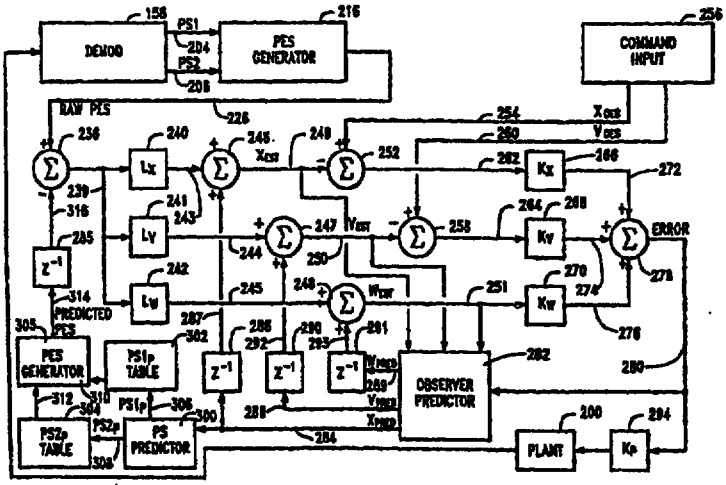
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(54) Title: MODELING POSITION ERROR NONLINEARITY TO IMPROVE SERVO PERFORMANCE



(57) Abstract

An apparatus and method are disclosed for improving servo performance of a disc drive (100). The disc drive includes a head (126) adjacent a rotatable disc (106) on which data are stored on a plurality of tracks (164). A servo circuit (144) is provided to control the position of the head by generating an actual (raw) position error signal (PES) (218, 458) nominally characterised as nonlinear over a portion of the width of a selected track and indicative of position of the head relative to the selected track. The servo circuit further generates a predicted PES (456) as an approximation of the actual PES, and then controls head position through summation of the actual PES with the predicted PES (236). The servo circuit includes a burst signal generator (300) which generates predicted burst signals (350, 370) as approximations of actual burst signals (208, 210) determined from readback signals from the head as the head reads servo burst patterns (176) on the disc. Error value tables (302, 304) provide improved approximations of the actual burst signals by compensating for asymmetric response of the head.