Betatron Motion with Logarithm-like Perturbation in Storage Rings, E. BULYAK, KIPT - Logarithm-like perturbation of the transverse potential occurs if the amplitude of betatron oscillations of a beam particle exceeds the beam (or the ion core for electron storage rings) radius. This situation takes place in storage rings with intense circulating beams for multiturn injecting particles, for the particles producing a halo, and for a vast part of beam electrons if electrostatic ion clearing electrodes applied. The closed analytical expression for the response of betatron tunes on the amplitude of oscillation is presented. Also transverse couple resonances driven by the perturbation are estimated. It is shown that the perturbation causes nonlinear coupling of the transverse degrees of freedom. Recommendations on choose a proper working point are made.