ON STOCHASTIC APPROXIMATION METHODS
IN RELIABILITY

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Abstract: Depending on the state of the stand-by equipment, can be distinguished loaded, non-loaded and partially loaded relief. In the case of loaded relief, the stand-by unit is in the same state as the operating unit and for this reason has the same intensity of breakdowns. In the partially loaded case, the stand-by device is loaded, but not so fully as the main equipment and for this reason has a different breakdown intensity. A stand-by unit that is not loaded does not, naturally, suffer breakdown. The spare wheel of an automobile is a typical example of non-loaded relief. Quite naturally, loaded and non-loaded relief are special cases of partially loaded relief.

On the other hand, the stochastic-approximation procedures require very little prior knowledge of the process and achieve reasonably good results. And for this reason such methods work satisfactorily in various applications. Many and very important results are obtained in particular by Solovyev, Gnedenko, Venter and Gastwirth.

In this paper we refer to some aspects regarding to the problem of the increase of the effectiveness of stand-by systems as a way in which the stochastic-approximation techniques can be applied in practice.

Key Words: stochastic differential equations, stand-by systems stochastic approximation processes, control processes.