

/AN EVALUATION OF VARIOUS PLOTTING POSITIONS/ 205

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1.0 INTRODUCTION

It has been stated that the hazard function could be used for distinguishing between various failure models such as the gamma, Weibull, exponential, normal, etc.. Comparing the strikingly different curve shapes of various hazard functions such a belief appears reasonable.

The results presented by D. Grosh [1] were in disagreement with the above belief, due to the fact that few of the plots looked anything like their theoretical curves. The procedure used by Grosh can be found in [1]. In the next approach Grosh used the old fashioned probability plotting technique. This method uses appropriate scaling to convert the cumulative distribution function (CDF) into a straight line. Although perfect selecting was not experienced, the discrimination was certainly much better than with the hazard function plots.

In order to use the latter method in its best form, different probability plotting positions should be considered; the question arises - what should be used as a plotting position? The problem is particularly pertinent where a probability paper is used, such that a straight line plot of the data indicates conformance to some type of distribution.

Bradford F. Kimball [6] has done limited study comparing some of the possible plotting positions. The types of distributions Kimball considered were the normal and the extreme-value. The results were based on complete samples of size 6. This work is an extension of the problems studied by Kimball, however a different approach will be used.