

1086-VI-1608

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*Reliability of a two class  $k$ -out-of- $n$  system with repair.*

In this paper we derive the reliability of a system which consists by two independent set of components with finite population  $n_i$  for  $i = 1, 2$  and a single repair machine. Life times of components are independent exponentially distributed random variables with parameter  $\lambda_i$ . Each of the sets fails the moment the number of functional componets falls to  $k_i - 1$ . One may consider system, as extension of a  $k$ -out-of- $n$  system with repairs where we assume two set of components  $i = 1, 2$ . The system operates under the  $(N_1, N_2)$ -policy, meaning that server activated for exhaustive repairs as soon as the number of failed components in set  $i$  reaches  $N_i$  ( $1 \leq N_i \leq n_i - k_i$ ) for  $i = 1, 2$ . The repaired components are assumed to be as good as new. The repair times of components and the life times are assumed to be independent of each other. Reliability of the system is computed for different modifications of the model and several other system characteristics are derived. (Received September 23, 2012)