

CONSIDERATIONS REGARDING RELIABILITY ANALYSIS METHODS APPLIED ON HYDRAULIC SYSTEMS

HORA Cristina, HORA Horea

University of Oradea

hora_cristina@yahoo.com, hora_horea@yahoo.com

In order to exemplify the way in which the methods which can be used in reliability and performance analysis of hydraulic systems are applied, in figure 1 a simplified water pumping system is described (it is made up of an inexhaustible water supply SA, two pumps, P₁, P₂, electro-valve V, and a tank R, also is neglecting the failure of the pipe connection). The two pumps are dimensioned in 2x50%.

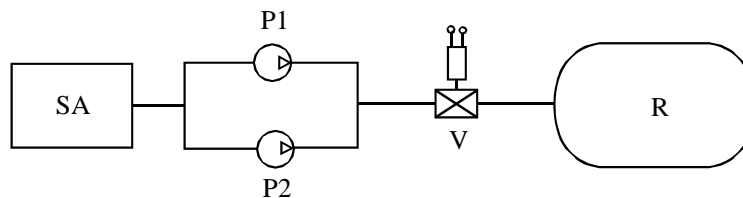


Fig. 1. – Water pumping system

The failure tree

We must take into consideration the following major events:

- ◆ E₁ = pump "P₁" is not functioning
- ◆ E₂ = pump "P₂" is not functioning
- ◆ E₃ = electro-valve "V" is locked in closed position

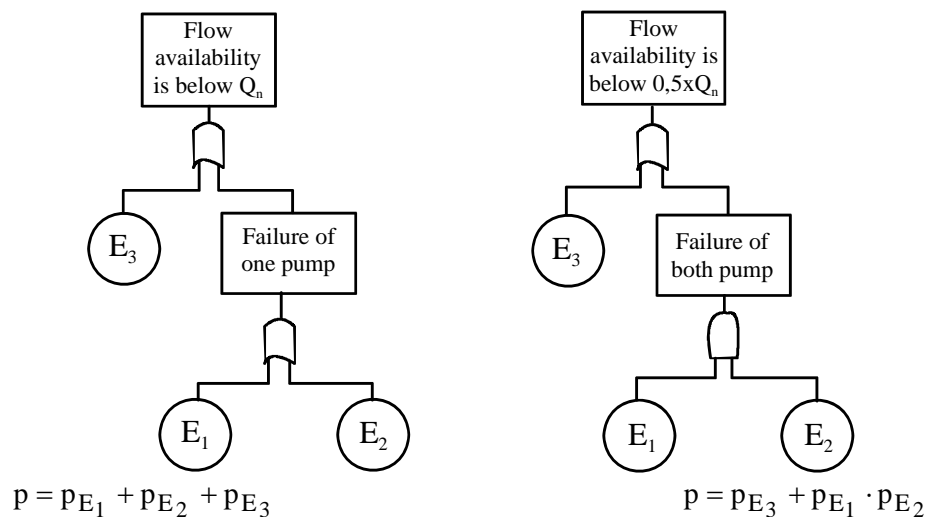


Fig. 2. –Fault tree's evolution

Bibliography:

- [1]. Felea, I. - *Ingineria fiabilității în electroenergetică*, Editura Didactică și Pedagogică, București, 1996
- [2]. Hora C. – Studii și cercetări privind fiabilitatea sistemelor hidraulice din structura centralelor electrice, Teză de doctorat, Oradea, 2007
- [3]. Ivas, D. ș.a. – *Fiabilitate, mentenanță, disponibilitate, performabilitate în hidroenergetică*, Editura Prisma, Rm. Vâlcea, 2000
- [4]. Nitu, V.I., Ionescu, C. - *Fiabilitate în energetică*, Editura Didactică și Pedagogică, București, 1980