

OPTIMAL DIAGNOSIS OF COMPLEX FITS IN THE FUNCTION OF RISK CONTROL

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According to the made research on failures and causes of mal-functions of the complex fits, having reductor as a typical mechanical fit, using the methods of Fault Tree Analysis, and Failure Mode, Effects and Criticality Analysis as well as reliability attained on the basis of the analysis of recorded data for the real condition during the service, the establishing of the continuous diagnostic system of reductor with the use of PLC-PC coupling could be quite precisely done. The entire system consists of system of control, diagnose and monitoring of some entities and fits through the all system levels. It is possible directly connect PLC to operating interface and manual programmer. The manual programmer has numerical keyboard with light indicators for marking the status and the operator terminal by which can be defined several hundreds messages with numerical and variable messages. Operating interface has an alpha-numeric display with functional keyboard being of use for showing process variables values, status, alarms and messages, register of errors – systemic and those ones defined by the user program with starting time and set parameters according to nickname or to address. In order to provide optimal and requested reliability level, i.e. maximal exploitation resources of work elements and risk control, it is necessary to be tracked changes of elements and entities which were proven as the least reliable ones. This issue of retrospection, diagnose, prognosis and control could be solved only by setting a global model of automated control and management of production process by programmable logic controllers (PLC) and personal computer network (PC). For this purpose there were developed configurations of system of management, monitoring and diagnosis of compact production systems within the information process system. In this way the model has been selected and set to the standard for practical usage. Improvement of functional diagnostic procedures of production systems enables the management of technical systems and risks in work and reduces damages. To contemplate the decision about diagnostic methods which would be used, we have to consider the economical elements of company motivation for usage of equipment for constant diagnostic.

REFERENCES

- [1] Catalogue of Firm UNO LUX, representative of , PLC Direct by Koyo, Belgrade, 1996, p. 11
- [2] Dašić, P.: Algorithm approach to determination of reliability of components technical systems, Plenary and invitation paper. In: *Proceedings of 5th International Conference "Research and Development in Mechanical Industry - RaDMI 2005"*, Vrnjačka Banja, Serbia and Montenegro, 04-07. September 2005, pp. 34-45.
- [3] Dašić, P.: Determination of reliability of ceramic cutting tools on the basis of comparative analysis of different functions distribution, *International Journal of Quality & Reliability Management (IJQRM)*, Vol. 18 (2001), No. 4-5, pp. 433-446.
- [4] Dašić, P., Natsis, A. & Petropoulos, G.: Models of reliability for cutting tools: Examples in manufacturing and agricultural engineering. *Strojniški vestnik – Journal of Mechanical Engineering*, Vol. 54 No. 2 (2008), pp. 122-130.
- [5] Jeremic B.: Terotechnologytechnology of technical systems maintenance, Eskod, Kragujevac, 1992. – 221 p.
- [6] Ljamic D.: Reliability of reductor in machines of continual systems for coal surfamining, Doctoral thesis, Pristina, 1997