

ABSTRACT

The doctoral thesis titled „Research on decision support in maintenance activities for equipment” has as main objective *the substantiation of the decision for maintenance intervention by monitoring the industrial equipment operation*, and as working hypothesis that *any disturbance in a kinematic chain (KC) caused by the malfunction of a mechanism influences the parameters of the drive electric motor*. The changes that occur to the components of the technical system are continuous and caused by the wear and tear of the moving parts as a result of the fatigue and aging phenomenon, of the possible modifications of the physical-mechanical properties or due to thermal stresses above the values prescribed by the manufacturer in the Instructions Book.

A device containing a kinematic chain is modeled. This chain is formed of minimal elements (which simulate the operation of a real technical system) and the changes resulted from the load with disturbance factors lead to obtaining information that can be used for real electromechanical systems managed by means of ***maintenance markers***.

One mentions the steps for making an acquisition system using the LabVIEW software application.

We show the steps of the research leading to the moment of maintenance decision support.

The research carried out within this thesis led to an effective system of interpretation of the kinematic chain components status in a technological system by monitoring the drive electric motor. Thus, for the first time a connection was established between the dynamic characteristics of the motion transmission mechanisms and the electromagnetic system of the drive motor, by monitoring and analyzing the electrical parameters that characterize the motor condition. The name given by the author to these parameters is “***maintenance markers***”.

Key words: virtual system, maintenance markers, equipment modeling, technical parameters monitoring, virtual instrument, maintenance decision.