

III INTERNATIONAL CONFERENCE
KRASNOYARSK, RUSSIA
20-21 November 2020



MIST: Aerospace

Advanced Technologies in Aerospace,
Mechanical and Automation Engineering

Science and Technology City Hall
KRASNOYARSK, RUSSIA

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«MIST: Aerospace - 2020: Advanced Technologies in Aerospace, Mechanical and Automation Engineering»

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«Reliability indexes of vibrating platforms for compaction
of construction mixtures»

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Problem statement

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- The experimental research and a particularly important prerequisite is to establish the required values with the least error, because the reliability of the information obtained from the processing of experiments is key to determine the true value of a parameter.
- According to the results of the study, data were obtained on the actual operating time for failure of the elements of the vibrating platforms VB-10V. The research identified the main prefabricated units and parts that failed: motor, gearbox, synchronizer, vibrator, propeller shafts, clutches.
- The method of determining the number of experiments and estimating the error in measuring the studied parameters is based on the basic provisions of probability theory and mathematical statistics. The results of the research indicate a low level of reliability of the cardan shaft, which leads to a long downtime at an unscheduled time of repair, which is 0.8-1.2 hours in the presence of spare parts in stock.

Solution methods



Figure 1. Photo-fixation of failures of working bodies of vibrating platforms

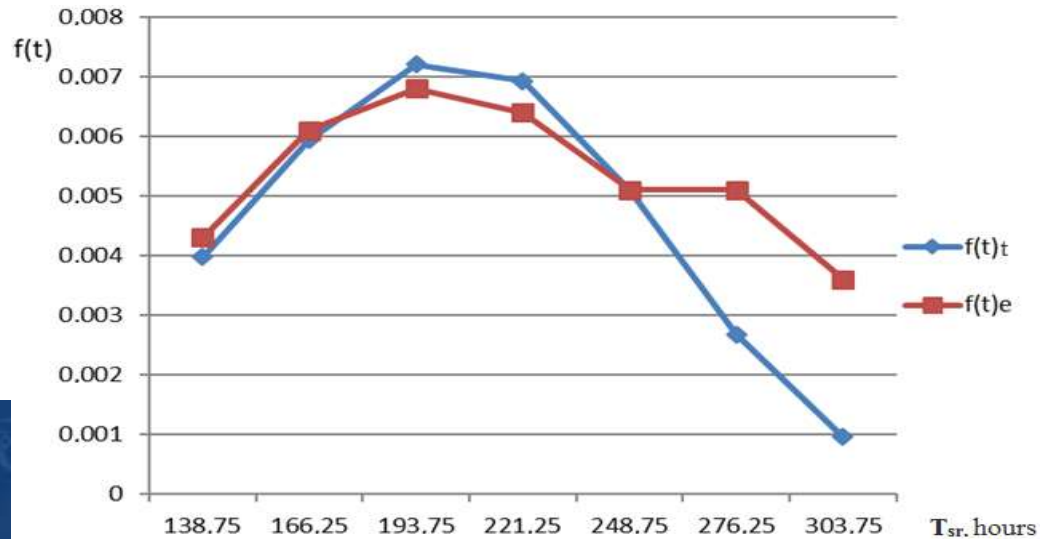


Figure 2. Graph of consistency of empirical and theoretical distribution.

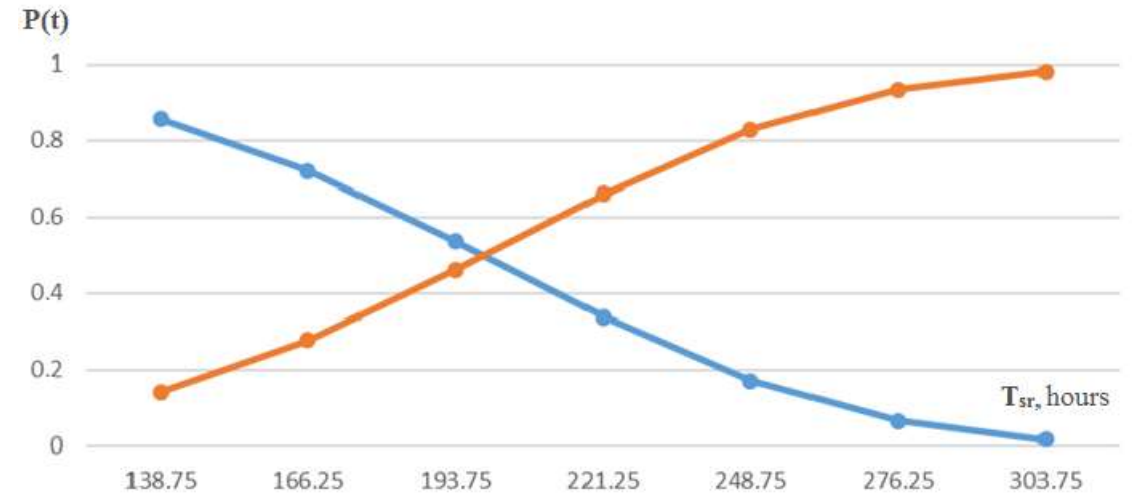


Figure 3. Probability of failure and trouble-free operation.



Conclusions

Results, implementation

- 1. The results of research indicate a low level of reliability of the propeller shaft, which leads to prolonged downtime at an unscheduled time of repair, which is 0.8-1.2 hours, in the presence of spare parts in a warehouse.
- 2. As a result of processing of the statistical information of indicators of reliability of a cardan shaft it is revealed that the average resource makes 261.95 hours, the standard deviation is equal to 53.2 hours, the coefficient of variation 0.27. The hypothesis of the error of the empirical distribution of resource indicators in comparison with Weibul's theoretical law is put forward.

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