

USE OF APPROXIMATIVE ANALYSIS OUTCOME OF EXPERIMENT IN PROBLEM OF DIAGNOSTICS TECHNICAL CONDITIONS OF HYDRAULIC SYSTEMS

© 2009 K. Y. Malchikov, L. M. Logvinov, M. A. Kovalev

Samara State Aerospace University

The problem of increasing the sensitivity of the built-in control sensors of parameters particles of contamination in a working fluid of hydraulic systems is considered. We offer the algorithm of processing of experimental data about distribution of contamination particles powder. The technique of forecasting distribution of contamination particles powder in the size less than $5\mu\text{m}$ by data about distribution of larger particles is described

Built-in sensor, technical state of hydraulic system diagnosis, distribution of contamination particles powder, approximation of probability density function

Malchikov Konstantin Yurjevich – postgraduate of Samara State Aerospace University. Phone: 8-(960)-8139010. E-mail: malq@inbox.ru. Area of research: tensor analysis of systems.

Logvinov Leonid Mitrofanovich – doctor of technical science, professor, chief of Samara State Aerospace University department. Phone: 8-(846)-3356422, 8-(846)-2674550. E-mail: rtu@ssau.ru. Area of research: gauges of the built - in control of a level of contamination of a working liquid, tensor analysis of systems.

Kovalev Mihail Anatolievich - the chief of military faculty of Samara State Aerospace University. Phone: 8-(846)-2674422, 8-(846)-2615089. E-mail: kovalev@ssau.ru. Area of research: Increase of reliability of hydrosystems of the aircrafts, proactive maintenance, diagnostic systems of a technical condition of hydrosystems on parameters of particles contamination, gauges of the built - in control of a level of contamination of a working liquid, tensor analysis of systems.

References

1. L.M. Logvinov Technical Diagnostics liquid Systems of hydraulic Systems of the process Environment on hydraulic Fluid Moscow: “CNTI”Poisk” (Search) , 1992.-91p. [in Russian]
2. G.A. Nikitin and S. V. Chirkov, Influence of Fluid Contamination on Reliability of Hydraulic System of Aircraft Moscow: “Transport”, 1969. – 184p. [in Russian]
3. Fitch E.C. Fluid Contamination Control // Technology transfer Series #4, Oklahome, FFS, INC. 1988. - 433p.
4. R.G. Timirkeev, V.M. Sapozhnikov, Industrial cleanliness and fine filtration of liquids of aircrafts. Moscow: “Mashinostroenie” (Mechanical engineering), 1986.-152p. [in Russian]
5. J.S. Chernenko, G.S. Lagosuk, Hydraulic systems of transport aircraft. Moscow: “Transport”, 1975, 184p.
6. S.A. Prokhorov, A.V. Grafkin, V.V. Grafkin and other, Application study of random process, edited by S.A. Prokhorov Samara branch of Russian Academy of Sciences, 2007, 582p., – [in Russian].
7. Bendat J, Piersol A, Measurement and analysis of random data Moscow: “Mir” (World), 1974.-463p. [in Russian]

S.A. Prokhorov, Approximative analysis of random Processes, Samara State Aerospace University, 2001, 329p. [in Russian]