Abstract

Bachelor's degree project of the 4th year student, group PK-71 of the Faculty of Instrument-Making Sergey Ryabkov on the topic: “Eddy current device for detecting operational degradation of aluminum alloys”.

Key words: aviation equipment, aluminum alloys, degradation, eddy current method, electrical conductivity, phase method.

In the diploma project the eddy current device for monitoring of degradation of aluminum alloys in aircraft designs was developed. The level of degradation is determined by the value of the specific conductivity of the alloy. The device implements a phase measurement method, which is less sensitive to variations in the gap between the control object and the transducer.

The structural, functional and schematic diagrams of the device, as well as the assembly drawing of the eddy current converter are developed.

The purpose of the work is to develop eddy currents of the device for monitoring the electrical conductivity of aluminum alloys in the process of their degradation.

The object of research is the process of measuring the specific electrical conductivity of aluminum alloys by the eddy current method.

The subject of research - eddy current methods and means of measuring the specific electrical conductivity of aluminum alloys.

Scientific novelty - when designing the device, it is proposed to take into account the temperature of the object of control and bring the result of measuring the specific conductivity to normal temperature.

This diploma project consists of 51 pages, 21 illustrations, 95 formulas, 30 literature sources.