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THE PECULIARITIES OF MAINTENANCE AND EXPLOITATION OF MODERN AVIONICS

Avionics means electrical, device, radio electronic equipment, pilotage-navigation complexes and systems. Practically the term «avionics» is not used when we speak about the construction of glider or airplanes engines. The basic task of aviation engineers and pilots is to provide accurate and correct work of avionics for providing the high level of safe flights.

The peculiarities of maintenance and exploitation occur when there are some aberrations of the avionics object. It means that peculiarities of maintenance or exploitation arise up in case of failure of any level, the object of avionics or its constituent.

Avionics as any other technique is improved in the process of work, and especially, after substial failures, especially when the failure of the object of avionics has been resulted in substantial losses or human victims.

Therefore it is very important to give the most exact and reliable information about the source of failure, and also to give some expedient recommendations as to prevention and avoidance of failures.

Adequacy of final decisions greatly depends on the methodology of approach finding direct reasons of failures.

Modern standards and practice are based mainly on system approache.

System methodology on the whole has achieved the limit of its application and it has become ineffective in professionally production activity which concerns the analysis of functioning of complex production machines.

There is a problem of uncertainty and low adequacy of their conclusions when experts use system to determine the causes and results connections which resulted in failures or malfunctions.

System approach can be used only as the primary analysis while analyzing the operation of complex machines and the causes of failures.

These days process methodology as a new research approach is of primary importance, because it solves the central problem of the system approach – it removes its uncertainty and improves the efficiency of analysis of operation of complex technical objects. The advantages of process approach are determination of the real cause-consequences connections which result in failures and malfunctions.

To provide rapid and correct determination the causes of failures and malfunctions it is necessary to combine system and process approaches: at first to use system approach for localization of failure, and then process approach for more accurate localization of failure and determination of causes of failures.

Knowledge of both methods considerably promotes qualification of aviation specialist.

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