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Using the improved quality estimation rate for choosing the most optimal maintenance company

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Airline profit depends on choice of Maintenance company. The faster and better the maintenance will be provided, the earlier airplane will be back in operation and be involved in the transportation process. Thus, airlines faces with the problem of choosing the most optimal Maintenance company to work with.

According to the algorithm for choosing the most optimal maintenance companies Airlines while choosing Maintenance companies should pay attention to two main criteria - quality of maintenance and cost of maintenance [1, 2]. As Maintenance cost characteristics it is used the Cost of the maintenance, the Cost of waiting lines, the Costs of aircrafts Shipping to maintenance station and the Cost of after-maintenance service. The Maintenance quality is determined using special improved quality estimation rate R.

$$K100_{\Sigma} = \frac{K100_{PIREP}}{K100_{PIREP1000hours}} + \frac{K100_{MAREP}}{K100_{MAREP1000hours}} + \frac{K100_{DELAYS}}{K100_{DELAYS1000hours}}$$

It is determined by comparison of the reliability rate calculating for 40-day period of aircraft operation after maintenance with average value of this parameter for the aircrafts with lifetime close to selected one. Researches shown that the rate R is normally distributed and the range of permissible values could be divided into intervals with limits 0.5σ , 1σ , 1.5σ , 2σ , 2.5σ and 3σ that match with values 0.38, 0.68, 0.87, 0.95, 0.98 and 0.99 of the Laplace table.

Using the proposed Maintenance quality rate in the algorithm helps Airlines to choose the most optimal Maintenance Companies both from cost-quality adequacy point of view and due to loss minimization, ensuring the required level of reliability, airworthiness and flight safety.

Література

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