

## FMECA OF BRAKE SYSTEM'S ELEMENTS OF LIGHT COMMERCIAL VEHICLES

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**ABSTRACT:** The development history and basic principles of method Failure modes, effects and criticality analysis – FMECA are described in the introductory part of the paper. Failure analysis is particularly important for systems whose failures lead to the endangerment of people safety, such as, for example, the braking system of motor vehicles. For the failure analysis of the considered device, it is necessary to know the structure, functioning, working conditions and all factors that have a greater or less influence on its reliability. Features of elements of mechanical systems regarding failure intensity demand special approach of quantitative FMECA. The paper presents this approach, applied to the elements of mechanical systems and used for design of a software package. Criticality analysis of failure modes of light commercial vehicles' braking system elements was conducted based on exploitation results and with the use of previously mentioned method and program. In conclusion, it points out the importance of methods for the analysis of failure of elements in order to improve the reliability and safety of operation, and therefore the quality of the technical systems.

**KEY WORDS:** Reliability, FMECA, Motor Vehicles, Braking System

## FMECA ELEMENATA SISTEMA ZA KOČENJE LAKIH PRIVREDNIH VOZILA

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**REZIME:** U uvodnom delu rada dat je istorijat razvoja i osnovne postavke metode Failure Modes, Effects and Criticality Analysis – FMECA. Analiza otkaza je posebno važna za sisteme čiji otkazi dovode do ugrožavanja bezbednosti ljudi, kao što je, na primer, sistem za kočenje motornih vozila. Za analizu otkaza razmatranog uređaja, neophodno je poznavati strukturu, način funkcionisanja, radne uslove i sve faktore koji imaju veći ili manji uticaj na pouzdan rada. Karakteristike elemenata mašinskih sistema u pogledu intenziteta otkaza zahtevaju poseban pristup kvantitativne FMECA. U radu je prikazan ovaj pristup, primenjen na elemente mehaničkih sistema i korišćen za izradu softverskog paketa. Analiza kritičnosti načina otkaza elemenata sistema za kočenje lakih komercijalnih vozila sprovedena je na osnovu podataka iz eksploatacije i uz korišćenje prethodno pomenute metode i programa. U zaključku rada ukazano je na značaj primene metoda za analizu otkaza elemenata za poboljšanje pouzdanosti i sigurnosti funkcionisanja, pa samim tim i kvaliteta tehničkih sistema

**KLJUČNE REČI:** Pouzdanost, FMECA, motorna vozila, sistem za kočenje

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