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MODELLING OF THE FRICTION AND WEAR CHARACTERISTICS OF SEMI-METALLIC FRICTION MATERIALS FOR COMMERCIAL VEHICLE DISC BRAKES

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The increased use of the disc brakes on commercial vehicles has provided a new challenge in the prediction of performance and wear of friction materials under different operating conditions from those of passenger car brakes, where most disc brake friction material development has taken place.

A prerequisite for successful prediction of service life and performance is the accurate description of the effects of operating parameters on these tribological properties.

This paper presents the description of the effects of pressure, speed and temperature on the friction coefficient and wear of a semi-metallic friction material under commercial vehicle operating conditions, using a modelling technique developed at Belgrade University, Yugoslavia, applied to experimental results obtained from the research facility of a U.K. (the United Kingdom) friction material manufacturer.

Key words: kommercial vehicle, friction materials, pressure, speed, temperature, modelling

MODELIRANJE KARAKTERISTIKA TRENJA I HABANJA SEMI-METALIK FRIKCIONIH MATERIJALA ZA DISK KOČNICE KOMERCIJALNIH VOZILA

Povećana primena disk kočnica na komercijalnim vozilima dovela je do novog izazova u predviđanju performansi i habanja frikcionih materijala koji se koriste u različitim radnim uslovima kao što su kočnice putničkih automobila, gde je najviše razvijen frikcioni materijal za disk kočnice.

Preduslov za uspešno predviđanje veka upotrebe i performansi jeste tačno poznavanje uticaja radnih parametara na ova tribološka svojstva.

Ovaj rad predstavlja prikaz uticaja pritiska, brzine i temperature na koeficijent trenja i habanje semi-metalik frikcionih materijala u radnim uslovima komercijalnog vozila, korišćenjem tehnike modeliranja razvijene na Univerzitetu u Beogradu, Jugoslavija, korišćenjem eksperimentalnih rezultata dobijenih na istraživačkoj opremi engleskog proizvođača frikcionog materijala.

Ključne reči: komercijalna vozila, frikcioni materijali, pritisak, brzina, temperatura, modeliranje.