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VEHICLE DRIVELINE TORSIONAL VIBRATION ANALYSIS

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The vehicle driveline, together with the vehicle mass, creates a torsional vibration system in which resonance vibrations appear under specific conditions. The main objective of the analysis in this paper was the assessment of different influences on natural frequencies and torsional vibration amplitudes of driveline components.

A dynamic model was developed, with reduced torsional stiffness and the distributed mass. For the purposes of analysis, only the first three torsional natural frequencies were considered. The driveline gain values in respect to excitation moments, from engine and from road were computed and graphically presented.

Key words: Driveline, torsional vibration, natural frequencies, gain values.

ANALIZA TORZIONIH OSCILACIJA PRENOSNIKA SNAGE MOTORNOG VOZILA

Prenosnik snage vozila zajedno sa translatornim masama vozila formira torzioni oscilatorni sistem u kome se rezonantne oscilacije pojavljuju pod određenim uslovima. Osnovni cilj analize u ovom radu je procena uticaja različitih faktora na sopstvene učestanosti i amplitude torzionih oscilacija komponenata prenosnika snage. Razvijen je dinamički model sa redukovanim torzionim krutostima i raspodeljenim masama. S obzirom na postavljene ciljeve analize razmotrene su samo prve tri sopstvene učestanosti torzionih oscilacija. Sračunate su i grafički prikazane vrednosti pojačanja u odnosu na pobudne momente od motora i puta.

Ključne reči: Prenosnik snage, torzione oscilacije, sopstvene učestanosti, vrednosti pojačanja.