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TECHNICAL SOLUTIONS FOR IMPROVING ECOLOGICAL CHARACTERISTICS OF DOMESTIC ENGINES FOR VEHICLES

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One half of all energy and row materials sources at our planet are, practically, engaged in production and exploitation of vehicles. The vehicles exist due to the same resources that all living beings depend on: soil, row materials, water, air and space. Obviously, the vehicles have significant influence on human environment; so, a special attention must be given to them. The first and the most significant step is to upgrade the vehicles in view of ecological and energy measures, starting from the production to recycling. Therefore, design and exploitation must be founded on global criteria:

RM+3E=Row Materials + Energy + Ecology + Economy

The drive units of the motor vehicles must be designed according to the RM+3E requirements in order to preserve top quality performances during the ride, independently on exploitation regimes and in all environmental conditions. The paper presents the results of the tests conducted on an engine with flexible Otto or Diesel cycles with automatic variable compression ratio that reduces the fuel economy under 3 l/100km and the CO_2 emission under 90 g/km. In addition, an original solution for exhaust emission reduction during the cold start with the results of the tests is presented in the paper.

Keywords: ***CI cycle, Liquefied petrol gas, Methanol, Natural gas, SI cycle***

TEHNOLOŠKA REŠENJA ZA POBOLJŠANJE EKOLOŠKIH KARAKTERISTIKA DOMAĆIH MOTORA ZA AUTOMOBILE

Oko polovine ukupne energije i sirovina na našoj Planeti se angažuje u proizvodnji i eksploataciji motornih vozila. Vozila egzistiraju na istim resursima kao i sva živa bića i zavise od: zemljišta, sirovina, vode, vazduha i prostora. Očigledno je da vozila imaju znatan uticaj na čovekovu okolinu, tako da im se mora posvetiti posebna pažnja. Pre svega je najvažnije posmatrati i ocenjivati ukupni uticaj vozila na okolinu tokom čitavog životnog ciklusa od proizvodnje pa do reciklaže. Zato proizvodnja i eksploatacija motornih vozila mora zadovoljiti globalne kriterijume:

S+3E= Sirovine+Energija+Ekologija+Ekonomija

Pogonski agregati motornih vozila moraju biti projektovani prema globalnim zahtevima S+3E tako da visoke performanse održavaju u toku eksploatacije, u svim režimima rada i uslovima okoline. Ovaj rad prikazuje rezultate ispitivanja motora sa fleksibilnim oto ili dizel ciklusom i automatski promenljivim stepenom kompresije, koji smanjuje potrošnju ispod 3 l/100 km a emisiju CO_2 ispod 90 g/km. Kao i originalno rešenje za smanjenje emisije u toku hladnog starta sa rezultatima ispitivanja.

Ključne reči: ***dizel ciklus, metanol, naftni tečni gas, prirodni gas, oto ciklus***