

Prof. Assistant Dr Pešić Radivoje, Faculty of Mechanical Engineering in Kragujevac
Prof. Dr Veinović Stevan, Faculty of Mechanical Engineering in Kragujevac
Prof. Dr Hnatko Emil, FSB Slavonski Brod
Prof. Dr Kazimierz Golec, IPSiSS, Politechnika Krakowska

ENVIRONMENTAL CHALLENGES TO THE PASSENGER CAR POWERPLANT OF THE FUTURE

UDK: 621.43.068.7

By law of nature, every work means transformation of the potential energetic content into the parasitic surrounding. The energy activated changes first and then destroys the environment. This global target can be taken as a symbol of the quest towards minimum fuel consumption and emission for all vehicle categories. Initial thinking suggests that a reduction in size and weight alone would not be sufficient to achieve the target economy of 80 mpg (2.94 l/100 km). Other technical measures need to be taken if the requirements for comfort, driving performance and safety are to be fulfilled. This includes optimization of the driving unit, the driveline and gears as well both fuels and lubricants.

Powerplant of the motor vehicles have to be projected by the demands: $R+3E = \text{Raw materials} + \text{energy} + \text{economy} + \text{ecology}$, so that during the drive we can preserve the top performance independently from the regime of use and in all ambient conditions.

Key words: ecology, energy, engine, fuel, lubricants, powerplant, vehicle

EKOLOŠKI ZAHTEVI PREMA POGONSKIM AGREGATIMA PUTNIČKIH VOZILA

Po zakonima prirode svaki rad znači pretvaranje potencijalnog energijskog sadržaja u parazitski bilans okoline. Angažovana energija prvo menja, a onda uništava životni ambijent. Globalni cilj razvoja pogonskih agregata jeste ostvarivanje minimalne potrošnje goriva i minimalne emisije u svim kategorijama vozila. Početni rezultati nam govore da samo smanjenje mase i dimenzija vozila neće biti dovoljno za ostvarivanje ciljane potrošnje od 2.94 l/100 km (80 mpg). Ostale tehničke mere ne smeju zanemariti zahteve kupaca u pogledu komfora, performansi i bezbednosti vozila. One podrazumevaju optimizaciju motora, transmisije i goriva i maziva.

Pogonski agregati motornih vozila moraju biti projektovani po zahtevima $S+3E = \text{sirovine} + \text{energija} + \text{ekologija} + \text{ekonomija}$ tako da tokom vožnje budu očuvane vrhunske performanse nezavisno od režima eksploatacije i u svim ambijentalnim uslovima.

Ključne reči: ekologija, energija, gorivo, mazivo, motor, pogonski agregat, vozilo