

*Blagoje Davidović, Dušan Mijuca,
Institute "Kirilo Savić", Belgrade, Vojvode Stepe 51
Dr Vojkan Lučanin,
Faculty of Mechanical Engineering, Belgrade, 27. marta 80, YUGOSLAVIA*

DIESEL ENGINE AND HYDRODYNAMIC TORQUE CONVERTER COUPLING ON THE RAILWAY VEHICLE

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Fulfillment of the optimal traction conditions (primarily the maximum traction force and coefficient of efficiency) of a trail diesel engine is conditioned by the proper coupling of the diesel engine and the hydrodynamic torque transmitter (converter). During new engines and converters design and installation, or during diesel engine (converter) replacement, it is necessary to coordinate their operational characteristics. In this paper, the methodology is described for coordinating these operational characteristics in two cases:

- a) when all the characteristics of the diesel engine and the converter are known, and*
- b) when these characteristics are not known, and when it is necessary to determine them at the test bench.*

The methodology outlined here was developed and applied in the reconstruction project of the train engine produced by MACOSA, Spain, and used by the Macedonian railroads. The reconstruction target was to replace the existing engine, power 206 kW, by a new one, produced by CUMMINS, NTA855R1, which has a maximal power of 258 kW at 2100 o/min.

Key words: railway vehicle, diesel engine, torque converter.

DIZEL MOTOR I HIDRODINAMIČKI PRENOSNIK KOD ŠINSKIH VOZILA

Ostvarenje optimalnih uslova vuče odnosno postizanje maksimalne vučne sile i stepena iskorišćenja motornog voza uslovljeno je pravilnom spregom dizel motora i hidrodinamičkog prenosnika. U novogradnji, kada se ugrađuju nov motor ili prenosnik, ili prilikom remonta kada se vrši zamena dizel motora (prenosnika), potrebno je uskladiti njihove radne karakteristike za dva slučaja i to:

- a) kada su poznate karakteristike dizel motora i prenosnika, i*
- b) kada ove karakteristike nisu poznate i potrebno je njihovo određivanje na probnom stolu.*

Razvijena metodologija je primenjena u projektu rekonstrukcije motornog voza proizvodnje MACOSA - Španija, makedonskih železnica. Predmet rekonstrukcije je zamena postojećeg motora snage 206 kW novim, proizvodnje Cummins NTA855R1, koji ima maksimalnu snagu 258 kW pri 2100 o/min.

Ključne reči: šinsko vozilo, dizel motor, prenosnik.