International Congress
Motor Vehicles & Motors 2012

SUSTAINABLE DEVELOPMENT OF AUTOMOTIVE INDUSTRY

Proceedings of Papers

October 3rd - 5th, 2012
Kragujevac, Serbia

International Congress
Motor Vehicles & Motors 2012

SUSTAINABLE DEVELOPMENT OF AUTOMOTIVE INDUSTRY

Proceedings of Papers

October 3rd - 5th, 2012
Kragujevac, Serbia

Publisher: Faculty of Engineering, University of Kragujevac
Serbia, 34000 Kragujevac, Sestre Janjić 6

For Publisher: Prof. Dr Miroslav Babić - Dean

Editors: Prof. Dr Radivoje Pešić
Prof. Dr Jovanka Lukić

Technical preparation: M.Sc. Dragan Taranović

Picture on the cover: Nemanja Lazarević

Print CD: Faculty of Engineering, University of Kragujevac

ISBN 978-86-86663-91-7

Year of publication: 2012

Number of copies printed: 200

CIP - Каталогизација у публикацији
Народна библиотека Србије, Београд

629.3(082)(0.034.2)
621.43(082)(0.034.2)

INTERNATIONAL Congress Motor Vehicles & Motors (2012 ; Kragujevac)
Sustainable Development of Automotive Industry [Elektronski izvor] : proceedings of papers / International Congress Motor Vehicles & Motors 2012, October 3rd-5th, 2012., Kragujevac, Serbia ; [congress organizers Faculty of Engineering ... [et al.] ; editors Radivoje Pešić, Jovanka Lukić]. - Kragujevac : Faculty of Engineering, 2012 (Kragujevac : Faculty of Engineering). - 1 elektronski optički disk (DVD) ; 12 cm

Sistemski zahtevi: Nisu navedeni. - Nasl. sa naslovnog ekrana. – Tiraž 200. - Bibliografija uz svaki rad

ISBN 978-86-86663-91-7
1. Faculty of Engineering (Kragujevac)
a) Моторна возила - Зборници b) Моторни са унутрашњим сагоревањем - Зборници
COBISS.SR-ID 193560076

Publishing of this book is supported by:

Ministry of Education, Science and Technological Development of the Republic of Serbia

SCIENTIFIC BOARD

President: Prof. Dr Radivoje Pešić, Faculty of Engineering, University of Kragujevac

Secretaries: Dr Danijela Miloradović, Faculty of Engineering, University of Kragujevac
M.Sc. Jasna Glišović, Faculty of Engineering, University of Kragujevac

Members:

Prof. Dr P. Andre, USA
Prof. Dr G. Belingardi, Italy
Prof. Dr M. Cavatorta, Italy
Prof. Dr F. Časnji, FTS Novi Sad, Serbia
Prof. Dr B. Dalla Chiara, Italy
Prof. Dr M. Demić, FE Kragujevac, Serbia
Prof. Dr A. Dimitrov, Bulgaria
Prof. Dr R. Durković, Montenegro
Prof. Dr D. Gruden, Germany
Prof. Dr A. Grujović, FE Kragujevac, Serbia
Prof. Dr E. Hnatko, Croatia
Prof. Dr A. Janković, FE Kragujevac, Serbia
Prof. Dr B. Kegl, Slovenia
Prof. Dr B. Krstić, FE Kragujevac, Serbia
Prof. Dr Z. Lozia, Poland
Prof. Dr J. Lukić, FE Kragujevac, Serbia
Prof. Dr B. Nikolić, Montenegro
Prof. Dr P. Nuccio, Italy
Prof. Dr S. Petrović, FME Beograd, Serbia
Prof. Dr D. Radonjić, FE Kragujevac, Serbia
Prof. Dr R. Radonjić, FE Kragujevac, Serbia
Prof. Dr C. Spentzas, Greece
Prof. Dr M. Tomić, FME Belgrade, Serbia
Prof. Dr S. Veinović, FE Kragujevac, Serbia

ORGANIZATIONAL BOARD

President: Prof. Dr Jovanka Lukić, Faculty of Engineering, University of Kragujevac

Secretaries: M.Sc. Dragan Taranović, Faculty of Engineering, University of Kragujevac
M.Sc. Aleksandar Davinić, Faculty of Engineering, University of Kragujevac

CONGRESS ORGANIZERS

- Faculty of Engineering, University of Kragujevac
- Department for Motor Vehicles and Motors, FE Kragujevac
- International Journal "Mobility & Vehicle Mechanics"
- University of Kragujevac
- Research Centre of Serbian Academy of Sciences and Arts and the University of Kragujevac

CONGRESS PATRONS

- Government of the Republic of Serbia, Ministry of Education, Science and Technological Development,
- City Hall of Kragujevac,
- Centre for technical proper function of vehicles, FE Kragujevac
- Centre for traffic safety, FE Kragujevac

Content

SECTION B

SECTION C

International Congress Motor Vehicles & Motors 2012

Kragujevac, October 3th-5th, 2012

MVM2012-058

Saša Babić[1]
Radivoje Pešić[2]
Jovanka Lukić[3]
Branimir Milosavljević[4]

NOISE EMISSION WITH ASPECT OF VEHICLES FLEET STRUCTURE – THE CASE OF SERBIA

ABSTRACT: In every day's traffic, vehicles are becoming older and noisier. Motor vehicles noise emission is examined by authorized laboratory before vehicle is placed on the EU market. In addition, each vehicle must meet the standards applicable to noise emission, according to specific vehicles categories. The problem represents the fact that noise, sampled on technical inspection, is not measured because noise tests are too complicated (necessary conditions cannot be achieved). Determination of noise quantity, emitted by vehicle is determined based on personal observations of person responsible for technical inspection. An additional problem is failure to log data in technical documentation on vehicle and also in base of registered motor vehicles. This paper only analyses participation of certain categories of vehicles in traffic, with certain noise emissions based on production year, from point of appropriate application permissible noise emissions regulations.

KEYWORDS: The structure of the fleet, noise, vehicle categories

INTRODUCTION

The rapid development of traffic in the last ten years caused a progressive deterioration of environmental conditions which are fully shown in a very complex and urban traffic conditions. Traffic noise caused by road traffic is a significant source of noise in cities, compared with other noise sources such are industrial noise, noise caused by air traffic, railway noise, etc. [1]. The studies conducted in several countries in past few decades have shown that noise has bad influence to the work activity of the population as well as to the disruption of sleep and generally to poor quality of living [2]. From the above mentioned reasons, it is necessary to control the noise generated by traffic.

Looking from the aspect of noise control and management, first it is necessary to know what the exact level of noise is. This can be done by measurements in the field or on the basis of a model for prediction of noise. Noise produced by traffic flow includes the emission of noise emitted by individual vehicles in the flow, moving in a specific order and the rules of flow. The most effective way to reduce noise emitted by vehicles is to control noise at source, or for the vehicles to become quieter. In most vehicles the noise emitted by the vehicle comes from the engine cooling system and fan, exhaust system, tires and aerodynamics of the vehicle [3]. Here it can be seen that the level of noise at the source depends on the producer of your vehicle. In one category, the same type of vehicle, even when it comes from the same brand, it possible to define certain subcategories of different emitting noise which will depend primarily on the number of different factors, such are, for example the type of car (sporty, luxury, city, economic and so on), engine power and its capacity, vehicle weight, tire size and type, and size and type of exhaust system which, also, depends on weight, size and design of the vehicle, all this can vary and so on [4]. Given the permanent changes that occur in the development of motorization and road traffic, and given the level of knowledge achieved so far, on the impact characteristics of the composition of the flow conditions of the traffic, it is safe to say that the influence of flow characteristics in terms of traffic and therefore noise levels on the network, is

[1] *Saša Babić, College of Applied Mechanical Engineering Trstenik, e-mail: babicsf@yahoo.com*
[2] *Radivoje Pešić, Ph. D., Prof., Faculty of Engineering, University of Kragujevac, Serbia, e-mail: pesicr@kg.ac.rs*
[3] *Jovanka Lukić, Ph. D., Prof., Faculty of Engineering, University of Kragujevac, Serbia, e-mail: jlukic@kg.ac.rs*
[4] *Branimir Milosavljević, College of Applied Mechanical Engineering Trstenik, e-mail: lenka1809@gmail.com*