

Mobility & Vehicle Mechanics

***International Journal for Vehicle Mechanics, Engines and
Transportation Systems***

ISSN 1450 - 5304

UDC 621 + 629(05)=802.0

Stojan Petrović Velimir Petrović	ACTUAL AND FUTURE EUROPEAN MOTOR VEHICLE EXHAUST EMISSIONS REGULATIONS	7-27
Dušan Gruden	ENVIRONMENTAL PROTECTION IN AUTOMOTIVE INDUSTRY	29-53
Snežana Petković	TECHNICAL INSPECTION OF VEHICLES AND ROAD SAFETY- INTERNATIONAL EXPERIENCE AND EXPERIENCE OF THE REPUBLIC OF SRPSKA	55-68
Marko Kitanović Predrag Mrđa Slobodan Popović Nenad Miljić	FUEL ECONOMY COMPARATIVE ANALYSIS OF CONVENTIONAL AND ULTRACAPACITORS-BASED, PARALLEL HYBRID ELECTRIC POWERTRAINS FOR A TRANSIT BUS	69-84
Saša Milojević Nenad Ilić Radivoje Pešić	APPLICATION OF HYDROGEN AS ALTERNATIVE FUEL FOR PROPULSION SYSTEMS IN CITY BUSES OVERVIEW -	85-96

Editors: Prof. dr Jovanka Lukić; Prof. dr Čedomir Duboka

MVM Editorial Board
University of Kragujevac
Faculty of Engineering
Sestre Janjić 6, 34000 Kragujevac, Serbia
Tel.: +381/34/335990; Fax: + 381/34/333192

Prof. Dr **Belingardi Giovanni**
 Politecnico di Torino,
 Torino, ITALY

Dr Ing. **Ćučuz Stojan**
 Visteon corporation,
 Novi Jicin,
 CZECH REPUBLIC

Prof. Dr **Demić Miroslav**
 University of Kragujevac
 Faculty of Engineering
 Kragujevac, SERBIA

Prof. Dr **Fiala Ernest**
 Wien, OESTERREICH

Prof. Dr **Gillespie D. Thomas**
 University of Michigan,
 Ann Arbor, Michigan, USA

Prof. Dr **Grujović Aleksandar**
 University of Kragujevac
 Faculty of Engineering
 Kragujevac, SERBIA

Prof. Dr **Knapezyk Josef**
 Politechniki Krakowskiej,
 Krakow, POLAND

Prof. Dr **Krstić Božidar**
 University of Kragujevac
 Faculty of Engineering
 Kragujevac, SERBIA

Prof. Dr **Mariotti G. Virzi**
 Università degli Studi di Palermo,
 Dipartimento di Meccanica ed
 Aeronautica,
 Palermo, ITALY

Prof. Dr **Pešić Radivoje**
 University of Kragujevac
 Faculty of Engineering
 Kragujevac, SERBIA

Prof. Dr **Petrović Stojan**
 Faculty of Mech. Eng. Belgrade,
 SERBIA

Prof. Dr **Radonjić Dragoljub**
 University of Kragujevac
 Faculty of Engineering
 Kragujevac, SERBIA

Prof. Dr **Radonjić Rajko**
 University of Kragujevac
 Faculty of Engineering
 Kragujevac, SERBIA

Prof. Dr **Spentzas Constantinos**
 N. National Technical University,
 GREECE

Prof. Dr **Todorović Jovan**
 Faculty of Mech. Eng. Belgrade,
 SERBIA

Prof. Dr **Toliskyy Vladimir E.**
 Academician NAMI,
 Moscow, RUSSIA

Prof. Dr **Teodorović Dušan**
 Faculty of Traffic and Transport
 Engineering,
 Belgrade, SERBIA

Prof. Dr **Veinović Stevan**
 University of Kragujevac
 Faculty of Engineering
 Kragujevac, SERBIA

For Publisher: Prof. dr Miroslav Živković, dean, University of Kragujevac, Faculty of Engineering

Publishing of this Journal is financially supported from:
Ministry of Education, Science and Technological Development, Republic Serbia

APPLICATION OF HYDROGEN AS ALTERNATIVE FUEL FOR PROPULSION SYSTEMS IN CITY BUSES – OVERVIEW -

Saša Milojević¹, Nenad Ilić, Radivoje Pešić

UDC:629.341;621.6.028

ABSTRACT: Fuel can be dangerous if handled improperly. Gasoline and diesel are potentially dangerous fuels, but over time we are learned to use them safely. The same is true with liquefied petroleum gas and natural gas. The hydrogen is suitable as a fuel for vehicles powered with both, internal combustion engines or indirectly for electric engines inside of fuel cell propulsion systems, too.

The problems associated with the production and storage of hydrogen currently limits the application of pure hydrogen as engine fuel in vehicles. This paper represents our designing proposition of a low-floor city bus for hydrogen power.

For application inside of low-floor city buses, hydrogen cylinders have to be installed on the roof for reasons of space. In addition, regarding to the lack of available information, the paper demonstrates an overview about safety regulations for vehicles with regard to the installation of specific components in hydrogen fuel line.

KEY WORDS: Hydrogen buses, Safe vehicle, Emission, City transport

PRIMENA VODONIKA KAO ALTERNATIVNOG GORIVA POGONSKIH SISTEMA GRADSKIH AUTOBUSA – PREGLED -

REZIME: Gorivo može biti opasno ako se njime rukuje nepravilno. Benzin i dizel su potencijalno opasna goriva, ali smo vremenom naučili da ih bezbedno koristimo. Slično važi i za tečni naftni gas i prirodni gas. Vodonik je dobro gorivo za vozila, bilo da se radi o direktnoj primeni u motoru sa unutrašnjim sagorevanjem ili indirektno za napajanje elektro motore posredstvom gorivih ćelija i električnog napona.

Problemi u vezi proizvodnje i skladištenja vodonika trenutno limitiraju njegovu primenu kao gorivo u motornim vozilima. U okviru rada je prikazan predlog koncepcije niskopodnog gradskog autobusa sa pogonom na vodonik.

U skladu sa raspoloživim prostorom, rezervoari za skladištenje vodonika se obično ugrađuju na krovu gradskog niskopodnog autobusa. Dodatno, u skladu sa nedostatkom raspoloživih informacija, u radu je prikazan pregled propisa u vezi bezbednosti ugradnje specifičnih delova instalacije za snabdevanje vodonikom.

KLJUČNE REČI: Autobusi na vodonik, bezbedno vozilo, Emisija, gradski saobraćaj

