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**VEHICLE AS A SAFETY FACTOR
OF THE TRANSPORTATION ACTIVITY**

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**VEHICLE AS A SAFETY FACTOR OF
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CONTENT

Predgovor	1
Foreword	2

INTRODUCTORY LECTURES

MVM2014-IL1	Giovanni Belingardi Brunetto Martorana	RECENT RESEARCH RESULTS IN COMPOSITE MATERIALS AND ADHESIVE APPLICATIONS FOR VEHICLE LIGHTWEIGHT	5
MVM2014-IL2	Dušan Gruden	ENVIRONMENTAL PROTECTION IN AUTOMOTIVE INDUSTRY	17
MVM2014-IL3	Maria Pia Cavatorta	ERGONOMIC ANALYSIS OF MOTOR VEHICLES	36
MVM2014-IL4	Josip Vlahović	THE CAR IN THE YEAR 2014	46
MVM2014-IL5	Stojan Petrović	ACTUAL SITUATION AND FUTURE DEVELOPMENT OF VEHICLE EXHAUST EMISSION LEGISLATION IN EUROPE	56
MVM2014-IL6	Snežana Petković	TECHNICAL INSPECTION OF VEHICLES AND TRAFFIC SAFETY- WORLD EXPERIENCE AND THE EXPERIENCE OF THE REPUBLIC OF SRPSKA	71
MVM2014-IL7	Dobrivoje Ninković	TURBOCHARGING OF IC ENGINES: AN OVERVIEW OF THE HISTORY, CURRENT STATE, AND THE DEVELOPMENT TRENDS	80
MVM2014-IL8	Zlatomir Živanović Slobodan Mišanović	FULLY ELECTRIC BUSES ARE PROMISING TECHNOLOGY IN THE FUTURE	81
MVM2014-IL9	Rajko Radonjić Aleksandra Janković	MOTOR VEHICLES - EDUCATION AND RESEARCH IN SERBIA	107
MVM2014-IL10	Boris Antić Dalibor Pešić Milan Vujanić	PROACTIVE ROAD SAFETY MANAGEMENT REGARDING FACTOR „VEHICLE“	120
MVM2014-IL11	Dalibor Pešić Boris Antić Krsto Lipovac	THE IMPORTANCE OF MEASURING THE BRAKE FORCE ON THE TECHNICAL VEHICLE CONTROLS IN TERMS OF TRAFFIC SAFETY	129

SECTION A

Transport Challenges in Emerging Economies

MVM2014-015	Svetlana Trajković Ljiljana Mihajlović	TRAFFIC MANAGEMENT	137
MVM2014-016	Ljiljana Mihajlović Svetlana Trajković	SUSTAINABLE DEVELOPMENT AND TRANSPORTATION	145
MVM2014-017	Ljiljana Mihajlović Svetlana Trajković	TRANSPORT LOGISTICS	149
MVM2014-018	Svetlana Trajković Ljiljana Mihajlović	EFFECT OF ENERGY AND TRANSPORTATION TO THE ENVIRONMENT MANAGEMENT	153

MVM2014-028	Slobodan Mišanović Vladimir Spasojević	MEASUREMENT THE FUEL CONSUMPTION OF BUSES FOR PUBLIC TRANSPORT BY THE METHODOLOGY "SORT" (Standardised On-Road Tests cycles)	158
MVM2014-029	Predrag Petrović Stanislav Glumac Živojin Petrović	ROAD CRASHES SERBIAN WITH CONSEQUENCES OF THE DEATH	165
MVM2014-035	Branko Davidović, Miroslav Božović	THE EFFECT OF INTERMODAL TRANSPORT ON THE REDUCTION OF CO2 EMISSION	174
MVM2014-036	Branko Davidović Miroslav Božović Nikola Maksimović	SOLAR VEHICLES AND ROADS	185
MVM2014-037	Đorđe Vranješ Branimir Miletić	RESEARCH METHODS FOR INVESTIGATION OF PREDICTORS ASSOCIATED WITH USING OF THE CHILD RESTRAINT SYSTEMS IN VEHICLE	193
MVM2014-038	Predrag Petrović Živojin Petrović Stanislav Glumac Marija Petrović	TREND OF PRODUCTION AND SALE OF MOTOR VEHICLES IN THE WORLD	199
MVM2014-043	Nenad Marković Miloš Miljković Mijat Cerović	IMPROPER USE OF PROTECTIVE SYSTEMS AS A REASON FOR PASSENGERS INJURIES IN VEHICLES IN TRAFFIC ACCIDENTS	208
MVM2014-044	Milan Vujanić Nenad Marković Duško Pešić	IMACT OF VEHICLE TECHNICAL IRREGULARITY ON TRAFFIC ACCIDENT OCCURENCE	217
MVM2014-049	Duško Pešić Nenad Marković Emir Smailović	THE SIGNIFICANCE DETERMINATION OF PROPER DECELERATION OF THE VEHICLE FOR ANALYSIS OF TRAFFIC ACCIDENTS	227
MVM2014-057	Ivan B. Krstić Boban Bubonja Vojislav B. Krstić Božidar V. Krstić Gordana Mrdak	OPTIMIZATION THE PERIODICITY OF MANAGING OF PREVENTIVE MAINTENANCE OF TECHNICAL SYSTEMS	236
MVM2014-058	Vojislav B. Krstić Aleksandr T. Todić Vukić N. Lazić Ivan B. Krstić Božidar V. Krstić Ljiljana Đorđević	MATHEMATICAL MODEL FOR OPTIMAL TIME DETERMINATION FOR INTERVALS OPTIMIZATION OF UNUSED VEHICLE PARTS RESOURCES AT THEIR REPLACEMENT	241
MVM2014-059	Ivan B. Krstić Vojislav B. Krstić Božidar V. Krstić Vukic N. Lazić Svetlana P. Trajković	DETERMINATION OPTIMAL EFFECTIVENESS OF ELECTRONIC DEVICES PREVENTIVE MAINTENANCE	244
MVM2014-060	Gordana Mrdak Milos Nikolic Božidar V. Krstić	POLITICS OF TRANSITION AND DEVELOPMENT STRATEGY	248
MVM2014-061	Aleksandar Todić Božidar V. Krstić Dejan Čikara Tomislav Todić Ivica Čamagić	MICROSTRUCTURAL CHANGES IN THE FUNCTION TO CHANGE THE CONTENTS OF VANADIUM IN STEEL FOR MOTOR VEHICLES	253

SECTION B

Power Train Technology

MVM2014-010	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	258
MVM2014-013	Saša Milojević Nenad Ilić	APPLICATION OF HYDROGEN AS AN ALTERNATIVE FUEL FOR PROPULSION SYSTEMS IN CITY BUSES OVERVIEW	268
MVM2014-019	Zoran Nikolić Zlatomir Živanović	STATE OF DEVELOPMENT AND PERSPECTIVE OF THE ELECTRIC VEHICLES	276
MVM2014-021	Dragoljub Radonjić Rajko Radonjić	POSSIBILITIES OF USING EMPIRICAL FORMULA FOR THE DETERMINATION OF DRIVE CHARACTERISTICS OF MODERN IC ENGINES FOR VEHICLES	288
MVM2014-022	Dragoljub Radonjić	ANALYSIS AND COMPARISON OF IDEAL CYCLES MODERN IC ENGINES BY USING OF THE GENERAL THERMODYNAMIC CYCLE	298
MVM2014-023	Milan Milovanović	ANALYSIS OF METHOD OF GAS SYSTEM INSTALLING	308
MVM2014-031	Vanja Šušteršič Jasna Glišović Dušan Gordić	TRENDS IN DEVELOPMENT, DESIGN AND CALCULATION OF CVT	312
MVM2014-040	Dejan Anđelković Srđan Jović Boris Antić	STATE, DEVELOPMENT AND PERSPECTIVES OF USING LPG FOR MOTOR VEHICLES IN REPUBLIC OF SERBIA	318
MVM2014-042	Predrag Mrđa Vladimir Petrović Stefan Đinić Marko Kitanović	DEVELOPMENT OF CONTINUOUSLY VARIABLE INTAKE MANIFOLD FOR FORMULA STUDENT RACING ENGINE	326
MVM2014-045	Slobodan Popović Nenad Miljić Marko Kitanović	EFFECTIVE APPROACH TO ANALYTICAL, ANGLE RESOLVED SIMULATION OF PISTON-CYLINDER FRICTION IN IC ENGINES	340
MVM2014-046	Vladimir Marjanović Marko Kitanović Slobodan Popović Nenad Miljić	A COMPARATIVE STUDY OF CONVENTIONAL AND SERIES HYBRID POWERTRAIN PERFORMANCE FOR PASSENGER CAR IN TAXI SERVICE	352
MVM2014-047	Nenad Miljić Slobodan Popović Marko Kitanović	ENGINE CRANKSHAFT SPEED MEASUREMENT ERROR COMPENSATION	363
MVM2014-053	Saša Milojević Radivoje Pešić Dragan Taranović Aleksandar Davinić	TRIBOLOGICAL OPTIMIZATION OF RECIPROCATING MACHINES ACCORDING TO IMPROVING PERFORMANCE	372
MVM2014-054	Radivoje Pešić Snežana Petković Emil Hnatko Stevan Veinović	DOWNSIZING INTERNAL COMBUSTION ENGINE WITH VARIABLE COMPRESSION RATIO: EFFECTS AND POTENTIALS	383

SECTION C

Vehicle Design and Manufacturing

MVM2014-011	Lozica Ivanović Danica Josifović, Andreja Ilić Blaža Stojanović Katarina Živković	OPTIMIZATION OF CARDAN JOINT DESIGN FROM LOAD CAPASITY ASPECT	396
MVM2014-012	Zorica Đorđević Jovana Rašić Mirko Blagojević Miloš Matejić Nenad Petrović	TRUCK SUPPORTIVE CHASSIS STRUCTURAL STATIC ANALYSIS	405
MVM2014-014	Zoran Majkić	ANALYSIS OF THE INTERACTION BETWEEN THE SUPERSTRUCTURE AND CHASSIS OFF-ROAD VEHICLES	411
MVM2014-025	Mirko Blagojević Zorica Đorđević Miloš Matejić Nenad Kostić Nenad Petrović	DYNAMIC MODEL OF CYCLOIDAL SPEED REDUCER	421
MVM2014-050	Branislav Popović Dragan Milčić Miodrag Milčić	DEVELOPEMENT OF AUTOMOTIVE RADIATOR COOLING FAN	427
MVM2014-051	Ljiljana Veljović Vera Nikolić-Stanojević Dragan Milosavljević Gordana Bogdanović Aleksandar Radaković	A MODEL OF PLANETARY GEAR TRANSMISSION	433
MVM2014-052	Gordana Bogdanović Dragan Milosavljević Ljiljana Veljović Aleksandar Radaković Dragan Taranović	THE MECHANICAL BEHAVIOUR OF MATERIAL IN AUTOMOTIVE ENGINEERING REINFORCED BY STRONG FIBRES	440
MVM2014-055	Ana Pavlović Cristiano Fragassa Stefano De Miranda	NUMERICAL SIMULATION OF CRASH TEST FOR THE HEAVY QUADRICYCLE	445
MVM2014-056	Dušan Arsić Vukić Lazić Srbislav Aleksandrović Dragan Milosavljević Božidar Krstić Petar Marinković Milan Đorđević	APPLICATION OF HIGH STRENGTH STEELS TO RESPONSIBLE WELDED STRUCTURES ON MOTOR VEHICLES	453

SECTION D

Vehicle Dynamics and Intelligent Control Systems

MVM2014-020	Branislav Aleksandrović Rajko Radonjić Dragoljub Radonjić Aleksandra Janković	RESEARCHING MOTORCYCLE'S STABILITY AT MOTION	461
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MVM2014-026	Jasna Glišović Miroslav Demić Jovanka Lukić Danijela Miloradović	A CONTRIBUTION TO RESEARCH OF SOME PHYSICAL CHARACTERISTICS OF DISC BRAKES IN LABORATORY CONDITIONS	466
MVM2014-032	Rajko Radonjić Danijela Miloradović Dragoljub Radonjić	AN APPROACH TO VEHICLE RESEARCH	479
MVM2014-033	Aleksandar Poznić Danijela Miloradović	EXPERIMENTAL EVALUATION OF MAGNETORHEOLOGICAL DISK BRAKE	487
MVM2014-039	Boris Stojić	COMPARISON OF THE PHYSICAL AND EMPIRICAL APPROACH TO MODELLING OF QUASISTATIC ENVELOPING PROPERTIES OF THE TRACTOR TIRE	495
MVM2014-041	Rajko Radonjić	INVESTIGATION OF THE DRIVER - VEHICLE DYNAMICS	502
MVM2014-048	Vlastimir Dedović Dragan Sekulić	CONVENTIONAL AND CNG BUS STEERING RESPONSES COMPARATIVE ANALYSIS	513

SECTION E

Driver/Vehicle Interface, Information and Assistance Systems

MVM2014-024	Dragan Ružić Boris Stojić	STRATEGIES OF IMPROVING THE AIR- CONDITIONING EFFICIENCY IN HYBRID AND ELECTRIC VEHICLES	525
MVM2014-030	Petar Spalević Adela Crnišanić	PREDICTING SNOWFALL IN INTERNET GIS FOR VEHICLE MANAGEMENT SYSTEM	534
MVM2014-034	Jovanka Lukić Slavica Mačužić Jasna Glišović Dragan Taranović	HUMAN BODY TRANSMISSIBILITY RESPONSE TO VERTICAL WHOLE BODY VIBRATION: ANTHROPOMETRICS EFFECTS – CASE STUDY SERBIA	539



MVM2014-026

Jasna Glišović¹
Miroslav Demić²
Jovanka Lukić³
Danijela Miloradović⁴

A CONTRIBUTION TO RESEARCH OF SOME PHYSICAL CHARACTERISTICS OF DISC BRAKES IN LABORATORY CONDITIONS

ABSTRACT: It has been proved in literature that there is no generally accepted method for the evaluation of characteristics and output parameters of the disc brake mechanism. This paper presents experimental research of disk brake subsystem with brake fluid pressure in the brake cylinder and disc speed as input quantities and brake torque and brake noise (expressed as sound pressure level) as output quantities. The work of disc brakes during the braking process is defined with physical output parameters: activation force, brake torque, brake noise, thermal load, etc. The aim of this paper was to determine the minimum number of mutually independent physical parameters that represent, with reasonable accuracy, the braking characteristics of disc brakes.

KEYWORDS: disc brakes, physical characteristics, experimental research, data processing

INTRODUCTION

The main task of the brake mechanisms is to achieve the necessary braking torque acting on the wheel of the vehicle, causing its deceleration, and thus braking of the vehicle. Therefore, the braking torque is a fundamental characteristic of every brake, the measuring tool of its functional properties or *performances*.

Calculation methods and testing procedures for disk brake mechanisms, presented in a large number of papers [1,2,3,4], have passed through several stages in their development. Calculation methods have experienced the most intense progress thanks to the development of computer techniques. In this way, numerical methods have become the basic calculation methods, without which, it cannot be possible to imagine the development of many products today in technologically advanced countries. These methods allow rapid analysis of a large number of different combinations and the selection of the optimal solution (optimization). Numerical methods [5,6] are approximate and they require reliable information based on which the boundary conditions are derived. Thus, there is their direct connection with the testing of brake mechanisms that provides information of high precision and quality, thanks to advancement of measurement and processing techniques and analysis of measurement results. In this way, the period needed for the development of new brake's elements is significantly reduced. The large part of the brake system testing is verification of compliance with the requirements of international and national

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