



Ing. Karel Hlava, CSc.

**Elektromagnetická kompatibilita trojfázového můstkového usměrňovače  
s R-C zátěží vůči napájecí síti**  
**Electromagnetic compatibility of a three-phase bridge rectifier with a RC load  
towards a power supply net**

The simulation study deals with a three-phase rectifier which supplies a RC load from the viewpoint of its electromagnetic compatibility towards a power supply net. A symmetric system of the three-phase voltage as well as an influence of an amplitude decrease of one phase voltage are presumed in the study. Several charts are presented as a result of the study demonstrating the relationship between indexes of power supply quality (power factor, relative values of the 5. and 7. current harmonics and a THD factor) and asymmetry of the supplying voltage. At the end of the study there are some instructions how a possibility is to be checked to connect the studied equipment to the power supply net.

Ing. Jan Matějka

**Nová technika při elektrizaci trati Brno - Česká Třebová**  
**New technologies used in electrification of the track Brno – Česká Třebová**

The paper presents new technical equipment, new technologies and new solutions used in electrification of the track Brno – Česká Třebová to overcome technical, energy and partially legal and environmental obstacles. The contributions of usage of new technologies as well as risks of some extorted measures of economy are shown. At the end of the paper the author recommends an objectivity in an economic evaluation of investments from the viewpoint of life-cycle costs of the construction work.

Ing. Luboš Smejkal

**Provoz elektrické lokomotivy mimo trolejové vedení**  
**Operation of an electric locomotive outside of a trolley**

One of the ways how to solve an energetically and economic effective operation on sidings and tracks without is an operation of electric locomotives supplied from two sources of energy. On tracks without a trolley an electric locomotive is supplied from batteries which are placed in a service coach. The author who put this idea into practice presents the technical solution and an evaluation of the eight year lasting operation in the area of DKV České Budějovice.



Dr. Ing. Jaroslav Smutný – doc. Ing. Luboš Pazdera, CSc.

**Využití moderních matematických postupů při analýze dynamických účinků  
od kolejové dopravy**

**Modern mathematics methods in the analysis of dynamic effects of the rail  
transport**

The paper deals with time and frequency transformation used to analyse characteristic signals of dynamic effects which load railway and tramway structures. One part of the paper is dedicated to a theoretical discussion of the problem and to practical application of selected methods of mathematical analysis in real railway and tramway structures. At the end the authors evaluate methods of time and frequency transformation used for analysis of non-stationary responses of railway and tramway structures and give some recommendations of practice in analogue measurements and analysis.

Dr. Ing. Aleš Lieskovský – Dr. Ing. Ivo Myslivec

**Řídicí systém moderních vozidel ČD řad 843, 943, 043  
Control system in modern vehicles series 843, 943, 043 of the ČD**

The newest diesel coaches series 843 as well as driving trailers and trailers series 943 and 043 are fitted out with a microprocessor-based control system. The system consist of a central vehicle controller (CVC), a vehicle diagnostic computer (VDC) and a traction regulator. The article describes the hardware and software of both CVC and VDC and their links with other devices in the vehicle. The article describes possibilities of the system in control of the vehicle and in maintenance oriented diagnostics.

Ing. Jaromír Bittner

**Modernizace motorových vozů řad 852 a 853  
Refurbishment of dieselrailcars Series 852 and 853**

In the year 1998 the Czech Railways (ČD) put into operation the diesel railcar 854.0330 which is a refurbished diesel railcar 853.030. The diesel engine KS 12 V 170 DR which is not reliable enough was replaced by the diesel engine 3412 E DI-TA of Caterpillar. The refurbishment of the diesel railcar was executed by PARS DMN Šumperk and covered the necessary changes in the mechanical part of the railcar and some modification of the interior, new heating and new screw compressor, too. The railcar has a control system INTELO Maxi, which was delivered by LOKEL Ostrava which makes possible an operation with automatic speed regulation and an from driving trailer controlled operation. The railcar has covered a distance of approximately 200 000 kilometers without any substantial failure in a test operation



which lasted 18 months. In these days the refurbishment of the diesel railcar 854.216 has been finished. There are some modifications on the railcar which result from experience obtained during the test operation. The remaining diesel railcars Series 852 and 853 are supposed to be refurbished in this way.

Ing. Martin Roubal

### **Modernizace elektrických lokomotiv a elektrických jednotek ČD Refurbishment of electric locomotives and electric multiple units of ČD**

The article deals with refurbishment of electric locomotives of ČD which are to be used on tracks with a maximum speed of 160 km/h (corridor lines). Then it deals with refurbishment of electric multiple units which are contemporarily under way. At the end it presents some refurbishment projects which have not been realized yet.

Ing. Miroslav Kočaň

### **Problematika železničních dvojkolí nákladních vozů dopravního režimu SS Problems of railway wheelsets of wagons which are operated in SS-mode**

At the beginning of the article there is some information about basic parameters of railway wagons which are to be operated in SS-mode especially as far as the braking power is concerned. The author emphasizes that new wagons series Sgnss and Hbbillnss of Czech railways comply with all UIC requirements. The article brings then an analysis of causes and effects of an extreme temperature load of monoblocs used on wheelsets of wagons which are operated in SS-mode. The results of checking and measurements of basic wheelset dimensions, monoblocs of which were damaged by an extreme temperature load as well as the results of tests with measurements of residual tangential strains in rims give an alarming signal about thermal damages of monoblocs by a block brake of wagons which are operated in SS-mode and about changes of mechanical properties of materials the monoblocs are made of. The experience are used as an argument for the owner railway to change the contemporary unsatisfying measures concerning the maintenance of wheelsets especially those ones used in wagons operated in SS-mode.

Ing. Hynek Sladký – Ing. Petr Decker

### **Modernizace osobních železničních vozů v MOVO Plzeň Refurbishment of coaches in MOVO Plzeň**

Refurbishment of coaches makes possible to operate modern coaches at a costs which lay between 40 to 60 % of costs for a new coach. The paper contains a list of activities of MOVO Plzeň in the area of refurbishment of coaches.



Ing. Miroslav Lintner – Ing. Karel Boček – Ing. Jaroslav Folta

**Modernizace osobních vozů v ŽOS České Velenice a. s.  
Refurbishment of coaches in ŽOS České Velenice**

The article deals with refurbishment of all coaches which were executed by ŽOS České Velenice up to now. These are coaches series WRRm, Bee, BRm, Bmee, Bdmeer and Aee. At the beginning there is some historical review of refurbishment and then for particular series the scope of the refurbishment and new equipment the refurbishment coaches were fitted out with.

Ing. Miroslav Lintner

**Rekonstrukce vedení dvojkolí na podvozku Görlitz V, Va  
Re-design of the wheelset guide in the bogie Görlitz V, Va**

The article deals with the re-design of the wheelset guide in the bogie Görlitz V and Va, which is executed by ŽOS České Velenice a.s.. It describes the original wheelset guide, its defects and negative effects on a track. In the following the article deals with the re-designed wheelset guide and its technical characteristics. At the end the article compiles all test results and deals with prospects of this re-design.