



doc. Ing. Pavel Zvěřina, CSc.

**Využití GPS a jiných geodetických metod pro měření v oblasti stavby
a údržby tratí**

**The Employment of GPS and Other Geodesic Methods for Measurements in the
Construction and Maintenance of Railway Lines**

The article gives an account of the latest methods of geodesic measurements that can be used in the construction and maintenance of railway lines. These include especially the satellite navigation system of GPS global localization. The author starts with experimental measurements carried out by the Institute of Railway Structures and Constructions and the Institute of Geodesy at the Technical University of Brno, Construction Faculty, assessing the accuracy, technical parameters and opportunities of employment in the railway building practice.

Ing. Aleš Filip, CSc. – Dr. Ing. Lubor Bažant - Ing. Hynek Mocek

**Vlakový polohový lokátor na principu GPS/GNSS pro zabezpečovací techniku
GPS/GNSS-Based Train Position Locator for Interlocking Systems**

This paper presents a verification methodology and experimental results achieved during trials of the train position locator GPS/ GLONASS based. Main attention is paid to the detection of train routing on switches and crossings, which is important for future applications of satellite navigation in railway signalling. Two-dimensional and one-dimensional routing detection models are analysed and experimentally investigated on switches and crossings. Finally, the safety-related requirements for future European navigation system GALILEO have been specified and discussed.

Ing. Petr Hloušek

**Úvod do problematiky návrhu a schvalování elektronických zabezpečovacích
zařízení dle nových evropských norem**

**The Introduction to the Designing and Approving of Electronic Interlocking
Systems According to European Standards**

The aim of the article is to give an account of the issues related to the designing and approving of, above all, electronic railway interlocking systems. All such devices being newly developed are subject to the new European standards that have been prepared according to current requirements for such devices. The standards present a new, expanded approach to the methodology of providing for security of electronic interlocking systems, expanding the methodology as used for "traditional" interlocking systems.



Ing. Karel Hlava, CSc.

**Diagnostika vlivu napájecí soustavy jednofázové trakce ČD na signál
hromadného dálkového ovládní**
**The Diagnostics of the Effect of Czech Railways Single-Phase Traction Feeding
System Upon the Mass Remote Control Signal**

According to the "Energy Act", the user of electric power may not restrict with his device the level of the control frequency in the energy mass remote control (MRC) system. The article describes the diagnosing and design of a filter-compensation device in the traction feeding station of Czech Railways single-phase system, which device makes it possible to verify and optimize its properties not only to improve the power factor and reduce the effect of harmonics on the voltage of VHV feeder network, but also with regard to the effect on the level of MRC signal.

doc. Ing. Jaromír Zelenka, CSc. - prof. Ing. Jiří Izer, CSc.

Nový jízdní obrys železničního kola a jeho zkušební provoz
The New Running Contour and Test Operation of the Railway Wheel

The article describes a new running contour of the wheel of the railway axle for Czech Railways as arising from the long-term monitoring of the running contour wear in railway vehicles operated by the Czech Railways. Mentioned are the basic properties of ZI-3 contour on theoretical rails with UIC60 reground rails, lots 136 and R65 rails with the cant of 1:20. The article also mentions particular results of the test operation of new ZI-3 and ZI-4 running contours in three DKV's on a total of nine electric locomotives.

Ing. Jiří Palašček - Miroslav Hůlka

Optimalizace trajektorie dotykových ploch ve výhybce
The Optimization of the Contact Surface Trajectory in the Switch

The development and optimization of the trajectory of crossing frog contact surfaces. The creation and checking of the new trajectory in the regeneration by welding-on – PŠR-1 template. The employment of the new trajectory of switchblade and crossing frog contact surfaces. The maintenance as a means of prolongation of life of newly inserted or regenerated crossing frogs and switchblades.



Ing. Mojmír Nejezchleb, CSc.

Konstrukční vrstvy tělesa železničního spodku modernizovaných tratí
Structural Layers of the Substructure Body in Modernized Lines

The modernization of selected Czech Railways lines – corridors for qualitatively higher operating requirements needs a principal reconstruction of the railway substructure. The article deals with the role of structural layers in the tie subsoil and describes the technique of their formation and used materials.

Ing. Zdeněk Hřebíček, CSc.

Měření napětí v bezстыkové koleji
The Stress Measurement in the Long-Welded Rail

The results of the work of D 202 ERRI Committee in the field of developing methods for stress measurements in welded bands of rails. The pieces of knowledge acquired during the study and final recommendations for the use of individual measuring methods.

doc. Ing. Karel Šotek, CSc. et al.

Tvorba jízdního řádu pomocí výpočetní techniky
na Českých drahách, s. o.
The Computer-Aided Generation of the Railway Timetable for the Czech Railways

The article describes the current state and implementation of SENA project (Computer-Aided Set of Train Diagrams) in the Czech Railways early in 2000.

Ing. Jaromír Široký

Integrovaný taktový jízdní řád a jeho uplatnění v praxi
The Integrated Timing Timetable and Its Practical Employment

The article informs about the potential use of a new operating technique in the railway passenger services for the improvement of traveling comfort. Described are the general principles of the timing transport and related integral timing timetable. The theoretical part is supplemented with very rich foreign experience, especially from regions of Germany.



Ing. Jiří Černý

**Kapacitní problémy seřadovacích stanic při časově diskrétní vlakovorbě
Capacity-Related Problems of Shunting Stations in the Time Discrete Forming
of Trains**

The article gives an account of certain aspects in the assessment of the required capacity for individual shunting stations using the time discrete technique. Shunting stations are assessed by two categories – satellite train-forming stations and basic train-forming stations.