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By providing international platform, 9. International Quality Conference 2015 will gather experts from industry and academia in order to exchange ideas and present results of ongoing research in a range of topics.

This Conference has a motto "Road to excellence".

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*Sincerely yours,
President of Organization Committee*

Prof. dr Slawko Arsouski



9th IQC
**QUALITY
RESEARCH**

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DEVELOPMENT OF TRACTORS AND TRAILERS IN ACCORDANCE WITH THE REQUIREMENTS OF LEGAL REGULATIONS

Abstract: Operation tasks of tractors and trailers in agriculture have changed considerably over the last decade. Today on the roads of Europe and the United States are tractors whose speed exceeds 50 km/h, even when fully loaded, which raises important issue of the effective stopping i.e. the quality of the braking system. Tractor trailers must correspond to the tractors with respect to size and weight, but must be capable of moving at speeds of towing vehicle. Their braking must be synchronized with the tractor and must not affect the deterioration of the operation quality of tractor-trailer combination. Also important is their good maintenance to avoid problems with the braking of the towing vehicle. In order to address these issues, revised braking requirements will apply to all agricultural tractors and their trailers (both new and existing) from 1 January 2016. They will also apply to equipment such as slurry tankers, fertiliser or manure spreaders, grain chaser bins and so on.

Keywords: tractors, trailers, brake system, legal, requirements

1. INTRODUCTION

The basic technology of agricultural machines has changed little over the last century. Though modern combine harvesters and planters may do a better job than their predecessors, the combine of today cuts, threshes, and separates grain in essentially the same way earlier versions had done. However, technology is changing the way that humans operate the machines, as computer monitoring systems, GPS locators, and self-steer programs allow the most advanced tractors and implements to be more precise and less wasteful in the use of fuel, seed, or fertilizer. In the foreseeable future, some agricultural machines may be made capable of driving themselves, using GPS maps and electronic sensors.

There is a tendency worldwide to improve tractor's transporting performance by increasing tractor speed. Faster, bigger, more powerful and more manoeuvrable machines are capable of developing ever higher speeds. Only the future will show whether the achievement of 50 km/h speeds signals an upper limit. Nevertheless, the increase of the agricultural

vehicles' speed requires efficient braking system that should enable agricultural vehicles to keep the pace with the other fast vehicles participant in road traffic, taking into account traffic safety. Braking technology for the mega-machines of today and tomorrow needs to be equally efficient, low-maintenance, convenient and economical. Highly effective, oil-cooled multi servo disk brakes guarantee a solid, reliable braking performance.

The standards associated with tractors are much more complicated than one outside of the standard's profession might expect. Tractor standards include three basic types of standards: safety, performance and interoperability. There are seven different major Standard Development Organizations (SDOs) for the agricultural tractor industry: the Organization for Economic Co-operation and Development (OECD), International Organization for Standardization (ISO), International Electrotechnical Commission (IEC), Society of Automotive Engineers (SAE) International, American Society of Agricultural and Biological Engineers (ASABE), Association of Equipment Manufacturers – Equipment Manufacturers Institute (AEM-

