

MATERIALS

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and students of Belarusian State Polytechnic Academy

In 2 parts

Part 1

Trends: "AUTOMOTIVE AND TRACTOR INDUSTRY",
"MACHINE INDUSTRY", "INSTRUMENT ENGINEERING",
"ROBOTICS", "METALLURGY", "ARCHITECTURE AND
URBAN PLANNING", "SOCIAL SCIENCES"

I.I. Lepeshko, V.G. Ivanov, Matar Sukheil, A.B. Hasan. Section "Motor cars".

The classification of brake gears shall be based on the relation between the control pedal force, its movement and brake torque developed by brake gears. As a result we can distinguish the following three groups: the direct action gears, the parallel action gears and the indirect action gears.

The direct action gears are characterized by the simplicity of construction and high speed response; still their usage is limited by the physical capabilities of the driver.

During the analysis of the parallel drive gears the vacuum hydraulic and hydro-pneumatic brake gears were considered, including hydraulic ones with hydraulic and mechanical amplifiers. The peculiarity of their mechanism of action lies in the inclusion of the amplifier to the work after the appearance of the pressure in the gear due to the influence of the driver effort. The result is that the selection of the gear ratio is limited, thus creating the limitation of their usage in heavy vehicles. The expert's opinion is that the most promising gear is the brake gear with a mechanic amplifier.

The direct drives, first of all, can be divided into pneumatic, pump-hydraulic, pneumo-hydraulic and electropneumatic. According to the results of functional analysis it can be concluded that the most promising design shall be the pump-hydraulic gear with a drive from the motor car's wheel as it allows not using the hydraulic accumulator and simplification of the device. Moreover, it can automatically perform the functions of the ABS.

I, Mikhail S. Shpakouski, sworn translator, do hereby certify that I am fluent in the English, Russian and Belarusian languages, and that the above document is an accurate and complete translation of the document" made this 8th day of Augusts 2012.

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