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**Influence of clutch technical condition on working effects of the internal combustion
sawing machine**

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Abstract: . *Influence of clutch technical condition on working effects of the internal combustion sawing machine.* The drive of chain saw in internal combustion sawing machines is transferred through a frictional clutch. The paper contains evaluation of changes in clutch characteristic in sawing machines caused by the wear of its elements. The maintenance operations preserving the proper functions of centrifugal clutch in the sawing machine are pointed out.

Key words: clutch, engine torque, clutch torque, rotational speed, jaw mass, contracting force, working effects

Forces acting on cutting link of gouge chain saw during wood cutting

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Abstract: *Forces acting on cutting link of gouge chain saw during wood cutting.* Quick development of internal combustion sawing machines and their spread in practice cause, that gouge chain saws greatly influence the effects of many production processes in logging and processing of wood. The paper presents investigations on forces exerted by the wood on cutting link of gouge saw: horizontal and vertical cutting edges and feed limiter.

Key words: chain saw, wood cutting, gouge link, thickness of chip, cutting resistance

Effect of wear of chain saw cutting links on the rate of wood cutting

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Abstract: *Effect of wear of chain saw cutting links on the rate of wood cutting.* The design and technical condition of chain saw links greatly influence the working effects of sawing machines. The hitherto evaluation of chain saws was based on experimental investigations, since there is a lack of appropriate theoretical models reflecting enough the real conditions of chain saw work. Development of such model would help in searching for the optimal design parameters of the chain links and the ways of machine exploitation.

Key words: chain saw, wood cutting, gouge link, cutting edge, feed limiter, thickness of chip, rate of cutting

Identification of sources of vibration hazards during exploitation of the chain sawing machine with electrical drive

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Abstract: *Identification of sources of vibration hazards during exploitation of the chain sawing machine with electrical drive.* The authors present an attempt towards application of computer techniques for measurement signal processing to identification of dynamic phenomena generating vibrations in portable chain sawing machines with electrical drive.

Key words: chain sawing machine, vibrations, vibration analysis

Rate of processing and vibration level in the sawing machine with electrical drive

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Abstract: *Rate of processing and vibration level in the sawing machine with electrical drive.*

The paper presents the results of experimental investigations on the effect of feeding force, height of kerf and type of the wood being cut on the rate of cross-cutting and the sawing machine vibrations. The measurements of acoustic emission during wood processing were used in determining the cross-cutting duration.

Key words: chain sawing machine, acoustic emission, vibrations, rate of cross-cutting

Attempt at application of vibroacoustic method in evaluation of technical condition of the internal combustion sawing machine

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Abstract: *Attempt at application of vibroacoustic method in evaluation of technical condition of the internal combustion sawing machine.* The author attempts to find the dependence between technical condition of internal combustion sawing machine and the magnitude of vibration and noise emissions. The undertaken investigations can contribute to learn the factors intensifying vibrations and noise and will facilitate development of the method for making a diagnosis on the sawing machine technical condition with the use of vibroacoustics.

Key words: vibroacoustics, internal combustion sawing machine, octave filter, equivalent sound level, equivalent vibration acceleration

Attempt at development of simulation method for evaluation of real time work in the chain sawing machine during pine logging

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Abstract: *Attempt at development of simulation method for evaluation of real time work in the chain sawing machine during pine logging.* The method for evaluation of real time work of chain sawing machine when felling, lopping and timber cross-cutting, based on computer simulation, was presented. For this purpose a model of large long log pine timber (a single

tree and the stand of trees) was worked out to generate the tree parameters. The algorithms enabling to calculate labour consumption coefficients of felling, lopping and timber cross-cutting were developed. The dependence between these coefficients and the breast height diameter, stem height and volume was found.

Key words: felling, lopping of trees, timber cross-cutting, chain sawing machine, model of large long log pine timber

Effect of shoe guide design on characteristic of centrifugal clutch in the chain saw

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Abstract: *Effect of shoe guide design on characteristic of centrifugal clutch in the chain saw.*

The paper contains analysis of clutch characteristic in the internal combustion chain sawing machine for various design solutions of jaw guides. Introduction of oblique or curved guides caused, that the value of torque transferred by the clutch depends not only on rotational speed but also on angular acceleration of the disc.

Key words: internal combustion chain sawing machine, clutch, clutch jaws, clutch characteristic

Effect of saw chain design on vibrations emitted by chain saws

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Abstract: *Effect of saw chain design on vibrations emitted by chain saws.* Several constructional solutions of the chain saws can be recently found on the market. In general, particular models differ significantly in the shape of cutting link or guiding link. Whereas the guiding link has lower influence on vibrations of internal combustion sawing machines, the cutting link directly taking part in wood cutting process influences to great extent the vibration amount. The vibrations emitted by internal combustion sawing machines equipped with various chain saws were compared in the paper.

Key words: vibrations, vibration acceleration, vibration emission, chain saw, cutting link, internal combustion sawing machine

Effect of carburetor fuel dose adjustment and air filter cleanness on carbon monoxide content in exhaust gases of the chain saw

Roman Kozłowski

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Abstract: *Effect of carburetor fuel dose adjustment and air filter cleanness on carbon monoxide content in exhaust gases of the chain saw.* Composition of fuel-air mixture is adjusted in carburetor with the use of two screws. The mixture composition is also affected by filter air-passing ability. The paper contains the results of investigations on carbon monoxide content in exhaust gases depending on the position of screws adjusting the fuel dose and air filter cleanness.

Key words: coefficient of air excess, carburetor screws for fuel dose adjustment, air filter throughput, carbon monoxide content in exhaust gases