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Декоративна деревина цінних листяних деревних порід, що зростають в Україні

Структура деревини цінних листяних деревних видів визначає особливості поверхонь пиляної та колотої деревини, які надають декоративний вигляд виробам із деревини. Декоративна деревина аномалій демонструє дуже часто неповторну текстуру і має досить високу вартість. Вони характерні для клена-явора форми “пташине око” та клена-явора, бука лісового та ясена звичайного із завилькуватою деревиною. Деревина цих цінних листяних деревних порід має велике значення як декоративна сировина, так і акустична сировина для виробництва музичних інструментів.

Ключові слова: декоративна деревина, завилькувата деревина, клен-явір, бук, ясен.

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PROBLEMS OF RELIABILITY OF HARDWARES IN COMPUTER-AIDED SYSTEMS OF TECHNOLOGICAL PROCESSES CONTROL

The questions of application of modern methods of determination of reliability of automated control the system technological processes are examined for the decision of tasks of increase efficiency of functioning of the automated production systems on the enterprises of industrial forestry complex. Influence of reliability of equipment on the actual productivity of the automated production systems is probed. Diminishing of reliability of equipment results in the considerable decline of the actual productivity of the automated production systems and decline of stability of technological operations. It is expedient to conduct the increase of reliability of the automated production systems by the structural backuping, development of charts of arrangement of equipment, structurally self-reactance optimization, imitation design.

Keywords: problems of reliability, automated control the system by technological processes, instability of duration of operations, imitation design is automated.

One of basic properties of hardware of automation of production processes, which substantially influences there is reliability on efficiency of functioning of automated control the system by technological processes. The considerable losses of time of functioning of technological equipment are drawn above all things the unreliability of technique, failings in organization of labour and other factors of external influence. Reliability of hardware of automated control the system by technological processes is determined such constituents: faultlessness, suitability to repair, by longevity, by property to keep the set descriptions during the set term.

Faultlessness, determines property of hardware to keep a capacity during some time is the most essential constituent of reliability of hardware and determined reliability of elements, chart of their connection, functional, structural and algorithmic features, external environments. Suitability to repair, characterizes adjusted of hardware to warning, finding and removal of consequences of refuses by implementation of technical service and repairs, predefined structural properties of hardware, presence of control-diagnostic apparatus, properties of the utilized elements, and also qualification of auxiliary personnel, organization of exploitation et cetera. Longevity characterizes property of hardware to keep a capacity with necessary interruptions for technical service and repairs to some certain state. Sometimes the moral senescence of majority of hardware often comes before, than physical. Important is property of hardware to keep the set operating descriptions during shelf-life and transporting.

Important the factor of violation of the set terms of co-operation between mechanisms, instruments and purveyances in a technological line there are not only harmful influences on equipments which appears in the process of his protracted exploitation, but also cyclic instability of parameters of work which shows up from the beginning of exploitation of technological line. Therefore interpretation of the phenomena of reliability of the automated production systems from positions only a wear and accumulation of damages is insufficient. In technological lines refuses influence on technological reliability through casual character of sizes and certain descriptions of purveyances, parameters of machine-tools and their knots, instruments. On proceeding in the normal process of functioning of the automated production system required set time. The charges of time on proceeding in normal work of equipment increase duration of intervals of issue and reduce the actual productivity of basic and auxiliary equipment [1-13].

The necessity of increase of reliability of hardware at automated control the system by technological processes is predefined the substantial consequences of refuses of hardwares, which result in diminishing of amount of products which is made, decline of its quality, to the groundless charges of energy, materials of raw material, fuel. These undesirable consequences grow with the increase of power of equipment and rev-up flowing of technological processes. As a result of insufficient reliability of hardwares and considerable growth of their amount the quantity of necessity of operative operating personnel of automated control the system by technological processes is increased, and also to the personnel which is engaged in repair of automatic control the system.

Therefore for the decision of problem of reliability of automated control the system by technological processes it is suggested to decide such essential tasks:

1. To develop the methods of forming of the scientifically grounded requirements to reliability of industrial hardwares of different types recognition possibility of their backuping, use of these facilities at different automated control the system by technological processes which differ after the level of necessary reliability.
2. To develop the methods of optimization of technical maintenance of hardwares of automated control the system by technological processes and microprocessors, to utilize facilities of computer technique, with the study of rational level of centralization of service and warehousing of awaiting-parts.
3. To develop scientific and technical principles and organizational methods of providing of reliability of hardwares for especially responsible automated control the system by technological processes, which must engulf all of the stages of development, mass production and exploitation of such hardwares.
4. To analyse possibilities and wideuse of vehicle and programmatic methods of control and diagnostics of good condition of hardwares of automated control the system by technological processes.
5. To create scientific and engineerings bases of reliable computer-aided of difficult facilities and control the system design. To execute a supervision and calculations of actual reliability of mechanisms indexes and built on in the conditions of exploitation together with analogical researches of the productivity and stability. It is expedient to conduct the increase of reliability of the automated production systems with the use of the structural backuping, development of charts of arrangement of technological lines, structurally self-reactance optimization, imitation design.

The decision of the indicated tasks, next to upgrading stuff wares, improvement of their external environments, upgrading preparation of operating personnel and other technical and organizational measures, will enable considerably to improve reliability of hardwares of automation of automated control the system by technological processes on the whole.

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Проблеми надійності технічних засобів в автоматизованих системах керування технологічними процесами

Розглянуто питання застосування сучасних методів визначення надійності автоматизованих систем керування технологічних процесів для вирішення завдань підвищення ефективності функціонування автоматизованих виробничих систем на підприємствах лісопромислового комплексу. Досліджено вплив надійності обладнання на фактичну продуктивність автоматизованих виробничих систем. Зменшення надійності обладнання призводить до значного зниження фактичної продуктивності автоматизованих виробничих систем і зниження стабільності технологічних операцій. Підвищення надійності автоматизованих виробничих систем доцільно проводити за допомогою структурного резервування, розроблення схем компонування обладнання, структурно-параметричної оптимізації, імітаційного моделювання.

Ключові слова: проблеми надійності, автоматизовані системи керування технологічними процесами, нестабільність тривалості операцій, імітаційне моделювання

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DETERMINATION OF LOADING IN THE MANIPULATOR TYPE MOBILE LOADING MACHINES BY THE ACCELERATIONS

The casual oscillations of loading machine during motion, on the basis of model of the spatial oscillating system of loader are considered. Indignation of oscillations in a loading machine is caused by different sources, namely: by the oscillations of the suspended log grab and load, manipulator, aggregates and knots of transmission, vibrations and inequalities of road. The theoretical bases are executed and determination of loading is offered by determination of vertical reactions by the oscillations.

Keywords: mobile loading machine, oscillations, accelerations, vertical reactions.

Introduction. Work of manipulator type mobile loading machines in the conditions of log sort yard is accompanied by the continuous by a change of loading which