

Pressure-working Processes (Cont.)

SOV/3368

effect of dimensions and form of the deformed area. Equations expressing this relationship are derived.

Persiyantsev, V. A., Candidate of Technical Sciences, Docent. Dependence of Resistance to Deformation on Deformation Speed.

128

The author analyzes the unexplored field of resistance to deformation in high-speed hot forging. Certain principles of such dependence are deduced on the basis of analogy with cold-stamping practices.

Shekhter, V. Ya., Candidate of Technical Sciences. Application of the Theory of Actual Stress Curves to Various Temperature Conditions of Deformation

146

This theory, thus far applicable only to cold deformation, is analyzed for possible application to hot-forging practice.

Protopopov, O. V., Engineer. Investigation into the Practice of Upsetting Pipe Stock.

155

Card 4/6

Pressure-working Processes (Cont.)

SOV/3368

The article is divided into three sections: problem of stress, problem of stability, and experimental results. The article analyzes the process of deformation of stock in the press and derives formulas for press force.

Orlov, P. K., Candidate of Technical Sciences. Experimental Investigation of the Formation of Flow Lines in Cold Stamped and Drawn Body Sections of Automobiles

169

The article covers the surface layer of sheets, formation of flow lines as a result of elongation stress, flow lines in deep drawing, and flow lines in cold-worked parts.

Polyakov, I. S., Engineer. Aspects of Rapid Heating of Forging Blanks

183

The author discusses and evaluates five methods of heating: rapid heating in a flame furnace, induction heating, arc-furnace heating, heating in an electrolyte, and heating in molten glass. No definite

Card 5/6

Pressure-working Processes (Cont.)

SOV/3368

conclusions as to economic advantages of any of these
methods are drawn.

AVAILABLE: Library of Congress

Card 6/6

AC/os
4/26/60

NORITSYN, I.A.

PHASE I BOOK EXPLOITATION SOV/2944

85(1)

Gubkin, Sergey Ivanovich (Deceased), Mikhail Vasil'yevich Storozhev,
 Boris Pavlovich Zvorono, Vasily Fedorovich Katkov, Ilarion
 Anatol'yevich Noritsyn, Yevgeniy Aleksandrovich Kopp, ~~Yevgeniy~~
 Aleksandrovich ~~Princo~~ ~~Al'yayev~~, Aleksandr ~~Yevgenyevich~~ ~~Koshlénov~~,
 Yevgeniy Yevlovich Unkov, and Leopold Kdol'fovich Shofman

Osnovy teorii obrabotki metallovo davleniyem (Fundamentals of the
 Theory of Metal Forming) Moscow, Mashgiz, 1959. 538 p. Errata
 slip inserted. 7,500 copies printed.

Ed.: M. V. Storozhev; Ed. of Publishing House: A. I. Sirotnin,
 Engineer; Tech. Ed.: B. I. Model'; Managing Ed. for Literature
 on Heavy Machine Building (Mashgiz): S. Ye. Golovin, Engineer.

PURPOSE: This book is intended for engineers and scientific workers
 studying the theoretical problems of metal forming.

COVERAGE: This collective work purportedly reflects the contemporary
 trends in the development of the metal-forming theory. Emphasis
 is given to methods of calculating forces and deformations.
 The use of these methods is illustrated in analysis of Smith-
 and drop-forging operations. No personalities are mentioned.
 There are 227 references: 197 Soviet, 17 German, and 13
 English.

NORITSYN, I.A.; YASHAYAYEV, S.Sh.

New way of preparing blades for cutter parts on agricultural
machinery. Kuz.-shtam.proizv. 2 no.1:10-14 Ja '60.
(MIRA 13:5)
(Agricultural machinery) (Sheet-metal work)

NORITSYN, I.A., doktor tekhn.nauk, prof.; KISLYY, P.Ye., inzh.

Free plastic torsion of circular rods. Izv.vys.ucheb.sav.; mashinotr.
no.11:34-48 '60. (MIRA 14:1)

1. Moskovskiy avtomekhanicheskiy institut.
(Torsion)

S/032/60/026/008/033/046/XX
B020/B052

AUTHORS: Noritsyn, I. A. and Kislyy, P. Ye.
TITLE: Determination of Mechanical Characteristics of Steel in Torsion Testing
PERIODICAL: Zavodskaya laboratoriya, 1960, Vol. 26, No. 8, pp. 999 - 1006

TEXT: The method of torsion testing and computing the mechanical characteristics from test results, is specified by GOCT-3565-58 (GOST 3565-58). The authors' method of computing the true mechanical characteristics of steel in torsion testing without the conventional complicated and time-consuming graphical differentiation (Ref.5), is described in the present paper. Fig.1 shows the solidification curves calculated from formula (2): $\tau = \tau_e + k \ln(\gamma/\gamma_e)$ (where τ denotes the contact stress on the cylinder surface, γ the displacement on the surface of the distorted cylinder, τ_e the contact stress corresponding to the physical elasticity limit, and γ_e the displacement corresponding to

Card 1/2

NORITSYN, I.A.; SHEKHTER, V.Ya.; STEPANYAN, R.L.

Manufacture of generator poles by cold peripheral upsetting.
Kuz-shtam. proizv 4 no.6:1-4 Je '62. (MIRA 15:6)
(Forging)

S/122/62/000/012/005/007
D262/D308

AUTHOR: Noritsyn, I.A., Doctor of Technical
Sciences, Professor

TITLE: High-speed loading in stamping

PERIODICAL: Vestnik mashinostroyeniya, no. 12,
1962, 54 - 61

TEXT: This is a review of the main problems
in the development of high-speed loading in stamping techniques.
It takes into account results of recent research in this field
published in the Soviet-bloc and in the West and also refers
to certain practical achievements attained in various factories
and workshops. The following points are discussed in detail:
the effect of the speed factor on resistance to deformation
in hot and cold stamping; speed of flow of metal at various
points of the deformation area; the effect of the rate of
deformation on heat generation; the effect of high-speed

Card 1/2

NORITSYN, I.A.; SHEKHTER, V.Ya.; BAZYK, A.S.

Manufacture of flanged bushing type parts by closed-die
forging. Kus.-shtam. profiz. 5 no.10:4-6 0 '63.
(MIRA 16:11)

NORITSYN, I.A., doktor tekhn. nauk, prof.; GOLOVIN, V.A., kand. tekhn.
nauk, dotsent; BAZIY, A.S., inzh.

Development of processes of closed-die forging. Vest. mashinostr.
43 no.12:38-42 D '63. (MIRA 17:8)

NORITSYN, I.A., prof., doktor tekhn. nauk; SHEKHTER, V.Ya., dots.,
kand. tekhn. nauk; ROVINSKIY, G.M., inzh.; BUNDIN, A.T.,
kand. tekhn. nauk, retsenzent

[Fundamentals of the design of sheet-metal stamping shops]
Osnovy proektirovaniya tsekhov listovoi shtampovki. Mo-
skva, "Mashinostroenie," 1964. 306 p. (MIRA 17:4)

ACCESSION NR: AP4026247

S/0122/64/000/003/0056/0061

AUTHORS: Moritsyn, I. A. (Doctor of technical sciences, Professor); Lubyanskiy, Yu. I. (Engineer)

TITLE: Deformation of metals with electric spark discharges in a liquid

SOURCE: Vestnik mashinostroyeniya, no. 3, 1964, 56-61

TOPIC TAGS: electric discharge, metal forming, blast forming, metal sheet forming

ABSTRACT: The use of electric discharges in a liquid to form metal parts by a method shown schematically in Fig. 1 on the Enclosure was investigated. An RC circuit is used to discharge electric energy into a fluid (during a characteristic time $T = RC$), causing a shock wave which deforms the metal blank into the die. The amount of energy imparted to the shock wave depends upon the circuits used and the distance and geometry of the electrodes. An overall efficiency of 30% can be achieved. It has been found that the positive electrode should be conical and grounded while the negative electrode should have a comparatively large area and should be connected to the negative terminal of the energy supply. It was also determined that an optimum voltage exists for best results with a

Card 1/3

ACCESSION NR: AP4026247

given discharge energy. For the intermediate energy range (1250-7200 joules) the optimum voltage was found experimentally as 30 kv. The relation

$$d = K \frac{D}{tR} W^{0.5}$$

was also established for a disk. Here d = deformation of sample, K = coefficient which depends on the electrode separation and material, D = die diameter, t = sample thickness, R = distance between arc and die, W = energy released during discharge. The use of this method to produce various cylindrical shapes is also discussed. Orig. art. has: 6 figures and 1 formula.

ASSOCIATION: none

SUBMITTED: 00

DATE ACQ: 20Apr64

ENCL: 01

SUB CODE: MM,GP

NO REF SOV: 007

OTHER: 006

Card 2/3

ACCESSION NR: AP4026247

ENCLOSURE: 02

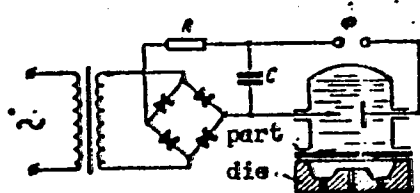


Fig. 1. Schematic of process

Card 3/3

NORITSYN, I.A., doktor tekhn.nauk, prof.; GOLOVIN, V.A., kand.tekhn.nauk,
dotsent; AKARO, I.L., inzh.

Heat release during die forging and pressing. Vest.mashinostr. 45
no.9:59-64 S '65. (MIRA 18:10)

NORITSYN, I.A., doktor tekhn.nauk, prof.; BEBRIS, A.A., kand.tekhn.nauk

Sheet-metal drawing on double-acting presses. Vest.
mashinostr. 46 no.1:61-63 Ja '66.

(MIRA 19:1)

ACC NR: AP7003846

(A)

SOURCE CODE: UR/0122/67/000/001/0054/0057

AUTHORS: Moritsyn, I. A. (Doctor of technical sciences, Professor); Golovin, V. A. (Candidate of technical sciences, Docent); Bukin-Batyrev, I. K. (Engineer)

ORG: none

TITLE: Increasing the extrudability of structural carbon steels for cold extrusion

SOURCE: Vestnik mashinostroyeniya, no. 1, 1967, 54-57

TOPIC TAGS: metal extrusion, carbon steel, plastic deformation, ferrite, pearlite, annealing, hardness, metal heat treatment/ 10 carbon steel, 20 carbon steel, 35 carbon steel, 45 carbon steel

ABSTRACT: This work establishes a quantitative relationship between the conditions of preliminary heat treatment of blanks and the cold extrudability of the most widely used structural carbon steels 10, 20, 35, and 45. The low-carbon steels (10, 20) were subjected to subcritical and supercritical annealing. The high-carbon steels (35, 45) were subjected to cyclic annealing and to other combined treatments. The tests of 10 steel showed that, in the presence of supercritical (740--760C), cyclic (4 cycles from 650 to 780C) and high-temperature (1050C) annealing, strong grain growth occurred, which reduced the hardness (see Fig. 1). It was established that the maximum increase in extrudability is achieved for 10 steel with supercritical annealing, for 20 steel with normalization and annealing, and for 35 and 45 steels with cyclic annealing and

Card 1/2

IPC: 631 001 4 660 44 00

ACC NR: AP7003846

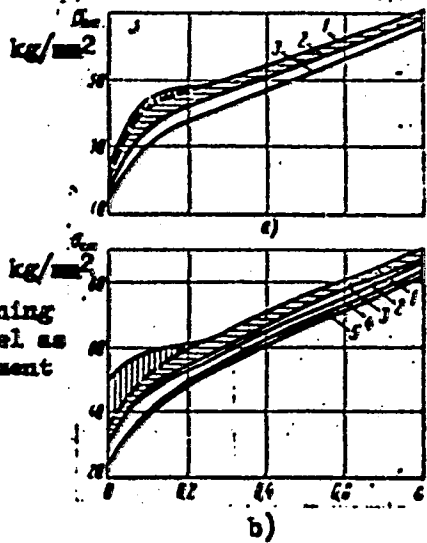


Fig. 1. Curves of hardening of 10 (a) and 20 (b) steel as a function of heat treatment

with normalization and annealing. The obtained results can serve as starting data for calculating the loads on tools and for selecting heat treatment conditions. Orig. art. has: 2 graphs and 3 tables.

SUB CODE: 13,11/SUBM DATE: none/ ORIG REF: 003/ OTH REF: 004 .

Card 2/2

ACC NR: APT004798

SOURCE CODE: UR/0413/67/000/001/0136/0136

INVENTOR: Noritsyn, I.A.; Lubyanskiy, Yu.I.

ORG: none

TITLE: Die-forging press. Class 58, No. 190212

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 1, 1967, 136

TOPIC TAGS: high energy rate forging, electrohydraulic forging, electrohydraulic forging press, explosive forming

ABSTRACT:

This Author Certificate introduces a pulsed-action electrohydraulic forging press. To make possible simultaneous application of a static pressure, the table of the press can be moved up and down by a hydraulic drive. [DV]

SUB CODE: 13/ SUBM DATE: none/ ATD PRESS: 5116

Card 1/1

UDC: 621.226

NOBISTSYN, M.

At the most important sectors. Sov.profsoiuzy 6 no.13:59-60.
59-60 0 '58. (MIRA 11:11)

1. Predsedatel' rabocheho komiteta Chusovskogo lespromkhozsa.
(Perm Province--Lumbering)

NORK, O. A.

"On the syntactical function of intonation."

report submitted for 5th Intl Cong of Phonetic Sciences, Muenster, W. Germany,
16-23 Aug 64.

GARGASAS, L.V. (Vil'nyus); NORKENE, V.V. (Vil'nyus); RAMANAUSKENE, R. Ya.
(Vil'nyus); OSIPAUSKENE, Ya.V. (Vil'nyus)

Organizing polyclinic attendance in cities of the Lithuanian
S.S.R. Sov. zdrav. 20 no.9:16-20 '61. (MIRA 14:12)

1. Iz Respublikanskogo nauchno-metodicheskogo byuro sanitarnoy
statistiki (dir. L.V.Gargasas, Vil'nyus).
(LITHUANIA MEDICAL CARE)

NORKOVICH, Lyudmila Nikolayevna

[Way to spiritual and physical regeneration] Put' k dukhovnomu
i fizicheskomu vozrastnieniu. Los-Ansheles, 1957. (MIRA 11:4)
(MIND AND BODY)

GARGASAS, L.; NORKIENE, V.; OSIPUSKIENE, J.

The health status of inhabitants of Siauliai and Panevezys in 1960.
Sveik. apsaug:27-33 Mr '63.

1. Respublikinis mokslinis-metodinis sanitarines statistikos
biuras.

NORKIN, Arkadiy Kuzmich; MURAKAYEVA, A., red.; MEL'NIKOV, A., tekhn.red.

[The UG-1M standardized hydraulic drive; construction and operation]
Unifitsirovannyi gidroprivod UG-1M; ustroistvo i ekspluatatsiia.
Tashkent, Gos.ind-vo Uzbekskoi SSR, 1959. 46 p. (MIRA 13:8)
(Oil hydraulic machinery)

BAZHIN, A.; NORKIN, I., zasypshchik domennoy pechi; GULIN, G.;
MYAKININ, M.; ZOLOTAREV, B.

Equal possibilities but different results. Okhr. truda i
sots. strakh. 5 no.7:32-33 JI '62. (MIRA 15:7)

1. Predsedatel' tsekhkoma domennogo tsekha metallurgicheskogo
kombinata imeni Serova (for Bazhin). 2. Vneshtatnyy tekhnicheskii
inspektor Sverdlovskogo oblastnogo soveta professional'nykh
soyuzov (for Gulin). 3. Predsedatel' komissii okhrany truda
zavodskogo komiteta Bogoslovskogo alyuminiyevogo zavoda (for
Myakinin). 4. Spetsial'nyy korrespondent zhurnala "Okhrana
truda i sotsial'noye strakhovaniye" (for Zolotarev).
(Sverdlovsk Province--Work clothes)

NORMIN, I. A.

Coal - Analysis

Mechanization of selection and sorting of coal samples. Izv. VTI 21 No. 6, 1952.

9. Monthly List of Russian Accessions, Library of Congress, October 1952 ~~1953~~, Uncl.

NORMIN, I.A.

Coal - Testing

Placing a mechanical coal testing apparatus design by the All-Union Heat Engineering Institute in the fuel supply line of an electric power station. Izv. VTI 21 No. 8, 1952.

9. Monthly List of Russian Accessions, Library of Congress, December 1952 ~~1953~~, Uncl.

1. NORKIN, I. A. Eng.
2. USSR (600)
4. Electric Power Plants
7. Introducing mechanical testing devices for coal designed by the All-Union Institute of Heat Engineering at electric power plants, Izv. VTI, 21, No. 11, 1952.

9. Monthly List of Russian Accessions. Library of Congress, February 1953. Unclassified.

NORKIN, I.A., inzh.

Dependency of the width of the sampling device on the maximum
coarseness of coal for testing. Teploenergetika 7 no.5:93-94
Ky '60. (MIRA 13:8)
(Sampling) (Electric power plants)

NORKIN, I.A., inzh.; KRASNOV, M.N., inzh.

Improvement of a mechanical VTI system sampler operating in large
coal conveying systems. Energetik 11 no.1:12-13 Ja '63.
(MIRA 16:1)
(Boilers)

WORKIN, I.M. abstract

Using horizontal holes for the drainage of mines in the German Democratic Republic. izv. vyz. uchob. zav.; geol. i razv. 7 no.5: 69-73 My 1961. (UFG 18:3)

1. Leningradskiy gornyy institut im. G.V. Plekhanova.

ZOLOTAREV, N.D.; NORKIN, I.M.; SMELOV, V.D.

Graphs of increasing volumes used in designing and planning strip
mining operations. Zap. LGI 49 no.1:74-79 '64.

(MIRA 18:8)

NORKIN, I.M.

Developing calculation methods for dumping waste rocks over the
open-pit edge. Zap. LGI 49 no.1:80-84 '64.

(MIRA 18:8)

NORKIN, I.M., aspirant

Modern conveyor transportation of overburden and coal at the
"Trebendorf" strip mine. Ugol' 40 no.4:67-70 Ap '65.
(MIRA 18:5)

1. Leningradskiy gornyy institut.

NORKIN, K. B.

"A Method of Automatic Determination of the Extreme Value of a Multi-variable Function."

Report presented at the Seventh Scientific and Technical Conference of Young Scientists of the Institute of Automation and Telemechanics of the AS USSR. March 14-16 1960.

PLANS 1 BOOK REFLECTIONS SVV/403

Abstracts sent USSR. Institute of Automatic Control, Collected

Abstracts sent USSR. Institute of Automatic Control, Collected
[Moscow] Institute of Automatic Control, Collected. 3,200
copies printed.

M.I. Zakh. Tsyplina, Doctor of Technical Sciences, Professor, Ed. of Publishing
House Izd. Giprosvyaz' Tekh. Sci. U.S.S.R. Jash'jere.

PURPOSE: This collection of reports is intended for scientists and engineers
engaged in the study of automation.

CONTENTS: The collection contains reports presented at the 6th Conference of
Scientists of the Institute of Automatic Control, USSR (Institute
of Automatic Control, USSR) in January 1970. The collection covers a wide range of scientific and technical problems
connected with automatic control. No personalization are mentioned. References
accompany each report.

PART III. STRUCTURAL ELEMENTS OF AUTOMATION AND TELEMECHANICS

198
Sokolov, I.B. Problem of the Competition of Dynamics in Electromagnetic
Resonance

The author endeavors to determine simple dynamic relationships for both
linear and nonlinear systems, without taking into consideration
such factors as level saturation, hysteresis, and relay elements. The
conclusion of the present report is that at the very moment the armature starts,
there are 3 references, all Soviet.

197
Sokolov, I.B. Device for Obtaining Low and Steady Consumption of Ac-
tivating Pressure Fluid by Controlling the Pressure Drop on the Control-
Pressure Throttle Valve

The author describes a method of obtaining low consumption of pressure
fluid in systems of automatic hydraulic control. The method is based on
the control of pressure drop in throttle valves with electrical resistances.
There are 3 references, all Soviet.

201
Sokolov, I.B. Service Device for Measuring Computers
The author describes a service device developed at the Institute of
Automation and Telemechanics of the Academy of Sciences USSR, which he
applies to the service of computers of Technical Sciences. The device
is a relay circuit and makes it possible to store 64 values within
a range of about 100r for a period of 3 to 4 hrs. There are no references.

203
Sokolov, I.B. Adapter for Testing Relay Characteristics in Analyzers
(Cathode-Ray Curve Tracer)

This report describes an adapter which may be used with the 4-cs oscil-
lograph 80-1 for testing static input and output characteristics of
relay parts (P, F, F2) and low-capacity (F) transistors. The adapter
operates in two connection diagrams, with a common base and with a
common emitter. The principle of operation of the adapter is clearly
indicated. There is one Soviet reference.

211
Sokolov, I.B. Resonant (Regenerative) Relay

The report deals with the construction of a relay which is a resonant
automatic control and telemechanics system. The relay should be used
where economical and efficient if they may be equipped with low-vol-
tage components built of ferrite cores and semiconductor diodes. The use
of these components lowers special requirements on the output relay
because of the low-power and short duration of pulses received from these
components. The author describes the circuitry, determining the reliability
parameters of some simple types of relays, and concludes that the reliability
of these operated are satisfactory. There are no references.

NORKIN, K.B.

GADZHIYEV, M.Yu.; GUL'KO, F.B.; DZHELYALOV, A.R.; DUDNIKOV, Ye.Ye.;
KAZAKOV, V.D.; LITOVCHENKO, I.A.; HORKIN, K.B.; PROKHOROV, N.I.

Seventh conference of young scientists of the Institute of
Automatic and Remote Control of the Academy of Sciences of the
U.S.S.R. Avtom. i telem. 21 no.9:1326-1331 8 '60. (MIRA 13:10)
(Automatic control--Congresses)

NORKIN, K.B. (Moskva)

Concerning a certain method for the automatic search of an extremum
function with multiple variables [with summary in English]. Avtom.
i telem. 22 no.5:618-623 My '61. (MIRA 14:6)
(Electronic calculating machines)

45775

S/194/62/000/012/088/101
D413/D308

6.4500

AUTHOR: Norkin, K. B.

TITLE: A system of automatic transmitter tuning using an automatic optimizer

PERIODICAL: Referativnyy zhurnal, Avtomatika i radioelektronika, no. 12, 1962, 73, abstract 12-7-145 zh (In collection: Avtomat. regulirovaniye i upr., M., AN SSSR, 1962, 144-153)

TEXT: A system of automatic transmitter tuning has been developed and tested in which the output stage is tuned to resonance automatically from the cathode current minimum and at the same time the coupling to the antenna is adjusted automatically to maintain this current at a given level. For preliminary coarse tuning of the transmitter, the system contains a unit for selecting the drive stage and a unit for coarse tuning to resonance. The time for tuning the transmitter is 10 - 20 sec and the accuracy of maintaining the cathode current minimum is 0.5%. After tuning, the system

Card 1/2

A system of automatic ...

S/194/62/000/012/088/101
D413/D308

hunts about the minimum point because of noise, with a period of 10 - 25 sec. For accurate tuning to resonance, a single-channel noise rejecting automatic proportional-action optimizer is used which seeks the external value of the controlled parameter by sequential steps. The adjustment of the antenna coupling is carried out by a very simple three-position regulator with a zone of insensitivity. A theoretical analysis is carried out to select the parameters for the optimizer, taking into account the effect of noise on the operation of its integrator. An intense 50 c/s background has no effect on the stability of the system. 2 references.

[Abstracter's note: Complete translation.]

Card 2/2

NORKIN, K.B. (Moskva)

Problem concerning the synthesis of a universal functional converter
with a given number of controlling parameters. Avtom.i telem. 23
no.8:1083-1089 Ag '62. (MIRA 15:7)
(Electronic calculating machines)

NORKIN, K.B. (Moskva)

Automatic adjustment of an universal functional generator with
piecewise linear approximation. Avtom.i telem. 23 no.10:1343-
1351 0 '62. (MIRA 15:11)
(Electronic calculating machines) (Automatic control)

MAKAROVSKIY, S.N.; NOBKIN, K.B.; FITSNER, L.W.

Using KHA-1 optimizers for heating furnaces. Priborostroyeniye no.4:25-27
Ap '63. (MIRA 16:4)

(Furnaces, Heating)

(Electronic contr(1))

NORKIN, K.B.; SPIRIDONOV, V.D.

Simple wide-band operational amplifiers with an efficient compensation of filament drift. Priboreschenie no.8:22-23 Ag '64.
(MIRA 17:10)

L 2593-66 EWT(d)/EWP(v)/EWP(k)/EWP(h)/EWP(l) IJP(c) BB/CG
ACCESSION NR: AP5019402 UR/0103/65/026/007/1216/1222
62-506.1

AUTHOR: Norkin, K. B. ⁴⁴ (Moscow)

47
45
B

TITLE: Application of the theory of mean-square approximations to a linear adaptive simulator

SOURCE: Avtomatika i telemekhanika, v. 26, no. 7, 1965, 1216-1222

TOPIC TAGS: control simulator, adaptive control simulator 16C, 44

ABSTRACT: A linear controlled simulator (see Enclosure 1) is considered whose transfer-function coefficients can be changed by applying external signals. Variable resistors are represented by blocks $a_0, a_1 \dots b_0, b_1 \dots$ and are numerically equal to the coefficients of this transfer function:

$$W(p) = \frac{b_0 + b_1 p + b_2 p^2 + \dots + b_n p^n}{a_0 + a_1 p + a_2 p^2 + \dots + a_n p^n}$$
 The coefficients a_1, b_1 are to be set in such a way that a specified output signal $y(t)$ is produced as a response to a specified input signal $f(t)$. In order to avoid successive differentiating (inacceptable for

Card 1/3

L 2593-66

ACCESSION NR: AP5019402

computers), a case is considered when $\frac{1}{T} \int_0^T f^{(l)}(t) dt = 0,$

$$\frac{1}{T} \int_0^T y^{(l)}(t) dt = 0, \quad (l, j = 0, 1, 2, \dots, n).$$

2

Successive integration of the functions of the above type combined with some simplifying mathematical techniques results in successive approximations to the exact solution. An idea and a block diagram of a physical realization of the above simulator are given. "This work arose as a result of an analysis of an experimental determination of linear-plant parameters conducted in IAT (TK) jointly with V. D. Spiridonov." Orig. art. has: 2 figures and 18 formulas.

ASSOCIATION: none

44

SUBMITTED: 15Jul64

ENCL: 01

SUB CODE: DP, IE

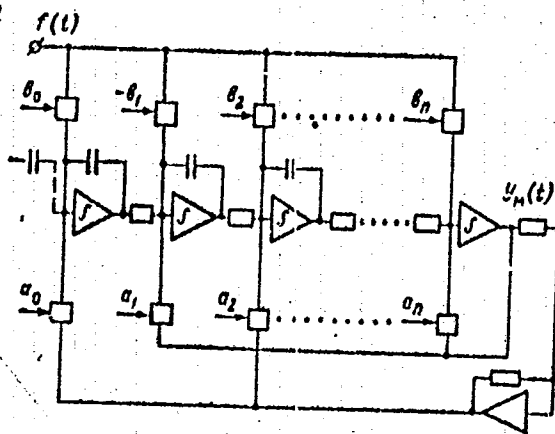
NO REF SOV: 001

OTHER: 000

Card 2/3

L 2593-66
ACCESSION NR: AP5019402

ENCLOSURE: 01



A block diagram of a linear controlled simulator

Card 3/3

L 40068-66 EWT(1)

ACC NR: AP6019779

SOURCE CODE: UR/0119/66/000/006/0013/0016

AUTHOR: Norkin, K. B. (Candidate of technical sciences); Spiridonov, V. D. (Engineer);
Cherkashina, A. S. (Engineer)

39
36
6

ORG: none

TITLE: Wideband amplifier with a semiconductor modulator-demodulator channel

SOURCE: Frihorostroyeniye, no. 6, 1966, 13-16

TOPIC TAGS: wideband transmission, dc amplifier, junction diode

ABSTRACT: The authors discuss the development of an amplifier system which can be used as a control element for guided models. The requirements of high gain, and stable wideband amplification of control signals are met through the use of semiconductor elements and a modulation-demodulation technique within the amplifier. The modulator-demodulator channel is solid state, the dc amplifier uses tubes. A block diagram of the system is shown in figure 1. The design of the modulator is based on the nonlinear voltage dependent junction capacitance of special pn diodes (varicaps). Principles of operation, characteristics, and specifications are outlined. The demodulator converts the amplitude variations of the input signal into pulse-width variations of a 100Khz rectangular wave carrier signal, using variable storage time of carriers in transistors. The average of the demodulator pulses is then taken. Waveforms illustrat

UDC: 621.375.121:621.375.4

Card 1/3

L 40068-66

ACC NR: AP6019779

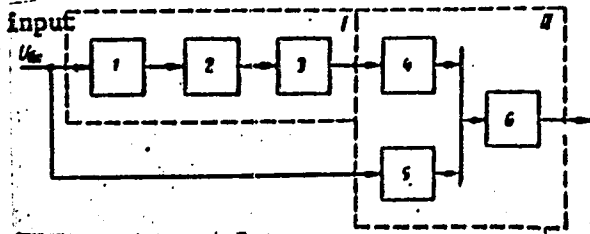


Fig. 1. 1--modulator; 2--transistor amplifier; 3--demodulator; 4, 5, 6--dc amplifiers

ing the operation of the demodulator are included. The schematic diagram of the modulator-demodulator channel is shown in figure 2. The averaged demodulator output is

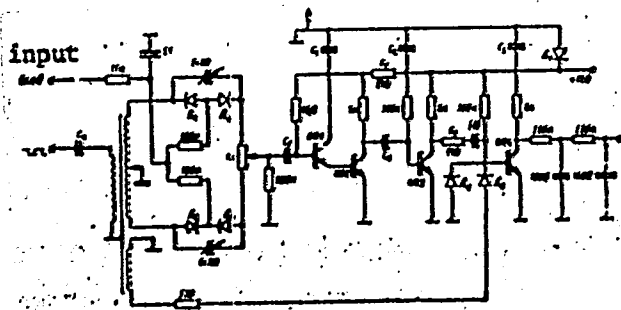


Fig. 2. D₁-D₄--diodes of type D808; D₅ and D₆--type D104; D₇--type D813. C₁-C₆=33,000 pf.

Card 2/3

L 40068-66

ACC NR: AP6019779

fed into a dc amplifier using electron tubes. The output voltage from the dc amplifier can be made to vary between -100 and +100 volts. The overall amplification factor of the total amplifier system is 10^7 at dc and greater than 100 at 100Khz. The modulator-demodulator channel increases the system gain by a factor of more than 1000. Because of the careful design, no special temperature compensation circuits are required, yet the system performs as specified over a temperature range of 10-60°C. Yu. N. Vladimirov, Yu. A. Mel'nikov, and V. M. Nesterova took part in the development of the device. Orig. art. has: 7 figures, 1 table. (14)

SUB CODE: 09/ SUBM DATE: none/ ORIG REF: 010/ OTH REF: 001

Card 3/3 *lll*

L 07208-67 EWT(d)/EWP(v)/EWP(k)/EWP(h)/EWP(l) 3D

ACC NRI AT6022696

SOURCE CODE: UR/0000/66/000/000/0291/0303

AUTHOR: Norkin, K. B.; Chadeyev, V. K.

37
641

ORG: none

TITLE: Self-adjusting models and their potential uses

SOURCE: Moscow. Institut avtomatiki i telemekhaniki. Samoobuchayushchiyesya avtomaticheskiye sistemy (Self-instructing automatic systems). Moscow, Izd-vo Nauka, 1966, 291-303

TOPIC TAGS: linear automatic control, nonlinear automatic control, self organizing system

ABSTRACT: This report deals with work conducted in the Laboratory of Self-Adjusting Systems of the Institute of Automation and Remote Control (laboratoriya samonastrai-vayushchikhaya sistem Instituta avtomatiki i telemekhaniki) since 1958 and gives the state of this work, evaluates it, and discusses future prospects. The author differentiates the commonly synonymous terms "self-adjusting" and "controllable" model; the latter is any model whose parameters may change under the action of external signals regardless of method, purpose, or even existence of this action; the former involves a "controllable" model with goal-directed change determined by some criterion. These concepts are defined in detail in 21 block diagrams and component schematics, with great attention to linear and nonlinear controllable models. All controllable models

Card 1/2

L 07208-67

ACC NR: AT6022696

may be used for problems with or without a standard, i.e., which respectively have a device whose output signal is the ideal which the controlled model must approach, or whose criterion of quality must be found by a more complex method. The former type of problem is best researched at the present time. The practical design of controllable models is also far advanced, both linear and nonlinear, as is also theoretical work. Definite success has been obtained in applying controlled models to specific problems. Combining the controllable model with an automatic optimizer gives prospects for stable, efficient, continuous, and automatic search. Orig. art. has: 13 formulas and 11 figures.

SUB CODE: 09/ SUM DATE: 02Mar66/ ORIG REF: 007

Card 2/2 11b

35757

S/124/62/000/003/036/052
D237/D302

11.6/00

AUTHORS: Norkin, K.M., and Spetstsi, G.N.

TITLE: The order in which components of the complex gaseous mixtures burn out during combustion

PERIODICAL: Referativnyy zhurnal, Mekhanika, no. 3, 1962, 100, abstract 3B649 (Sb. 3-ye Vses. soveshchaniye po teorii goreniya. v. 1, M., 1960, 160 - 162)

TEXT: the purpose of this investigation was to confirm, experimentally, that amounts of reactants influence chemical relationships. Combustion of water-gas and natural gas was studied by the method of separated double-cone flame. It was found that increase in the air input increases the combustibility of hydrogen. Combustibilities of methane and CO were compared, the order of burning-out was established and the experimental set-up was described. [Abstractor's note: Complete translation].

Card 1/1

L 43883-66 ENT(d)/EMP(1) LJP(c) BB/GG SOURCE CODE: UR/0413/66/000/016/0055/0095
ACC NR: AP6030573

INVENTOR: Kreynin, S. I.; Lashevskiy, R. A.; Maksimov, M. N.; Rabkina, N. V.;
Khavkin, V. Ye.; Skvortsov, A. M.; Norkin, L. M.

42
B

ORG: none

TITLE: Memory device. Class 21, No. 184935

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 16, 1966, 55

TOPIC TAGS: computer memory, computer storage device

ABSTRACT: This Author Certificate introduces a word-organized memory consisting of multiaperture ferrite plates, and a magnetic decoder with transformers using multiaperture ferrite plates (see Fig. 1). To increase both the speed and capacity

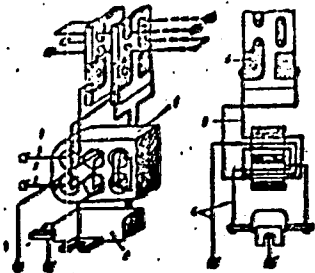


Fig. 1. Memory device

- 1 - Ferrite plate; 2 - diode matrix;
- 3 - bias winding; 4 - excitation winding;
- 5 - output winding; 6 - printed winding.

Card 1/2

UDC: 681.142.07

L 43883-66

ACC NR: AP6030573

and to reduce the required power, the magnetic decoder contains a diode matrix of integral planar structures with a number of p-n junctions equal to the number of addresses in the device. Orig. art. has: 1 figure. [JR]

SUB CODE: 09/ SUBM DATE: 20May65/ ATD PRESS: 5075

Card 2/2 mjs

NORRIN, N. N.

DECEASED

1964

Heat Transfer
Steam
High-pressure

C. 163

NORKIN
NORKIN, Nikolay Sergeyevich

[Accounting in enterprises engaged in inland water transportation]
Bukhgalterskii uchet na predpriyatiyakh rechnogo transporta. Izd.
2-oe pererab. Leningrad, Izd-vo "Rechnoy transport," 1957. 356 p.
(MIRA 11:4)

(Inland water transportation--Accounting)

NORKIN, S. B.

"On Periodic Solutions of a Linear Homogeneous Differential Equation of the Second Order with a Lagging Argument." Moscow Order of Lenin and Order of Labor Red Banner State U inani M. V. Lomonosov, Vologda, 1955
(Dissertation for the Degree of Bachelor of Physicomathematical Sciences)

SO: Knizhnaya Letopis', No. 32, 6 Aug 55

NORKIN, S.B. (Vologda)

Problem with a segment containing a given angle, occurring in the
work of a navigator. Mat. v no2:87-88 Mr-Apr '55. (MLRA 8:6)
(Geometry--Problems, exercises, etc.) (Navigation)

NORKIN, S.B.

NORKIN, S.B. (Vologda)

Inscribed and circumscribed spheres. Mat.v shkole no.5: ~~34-41~~ 8-0'55.
(Sphere) (MIRA 8:11)

NORKIN, S.B.

Boundary problem for a second order differential equation with a
retarded argument. Uch. zap. Mosk. un. no.181:59-72 '56.
(Differential equations) (MLBA 10:4)

NORKIN, S.B.

EL'SGOL'TS, Iav Ernestovich; NORKIN, S.B., redaktor; NEGRINOVSKAYA, R.A.,
tekhnicheskiy redaktor

[Differential equations] Differential'nye uravnenia. Moskva,
Gos.izd-vo tekhniko-teoret.lit-ry, 1957. 271 p. (MLRA 10:8)
(Differential equations)

NORKIN S.B.
NORKIN, S.B. (Moskva).

Semiregular polyhedrons. Mat. v shkole no.2:1-7 Kr-Ap '58.
(Polyhedra) (MIRA 11:2)

16(1)

AUTHOR:

Norkin, S.B.

SOV/155-58-2-15/47

TITLE:

Oscillation Theorems of the Type of Sturm for a Second Order
Differential Equation With a Retarding Argument (Otsillyatsionnyye
teoremy tipa Shturma dlya differentsial'nogo uravneniya vtorogo
poryadka s zapazdyvayushchim argumentom)

PERIODICAL: Nauchnyye doklady vysshey shkoly. Fiziko-matematicheskiye nauki,
1958, Nr 2, pp 76-80(USSR)

ABSTRACT: Given the boundary value problem

$$y''(x) + \lambda y(x) + M(x)y(x-\Delta(x)) = 0$$

$$(1) \quad y(0) = y(\pi) = 0$$

$$y(x-\Delta x) \equiv 0 \text{ if } x-\Delta x < 0.$$

Let the functions $M(x)$ and $\Delta x \geq 0$ be continuous on $[0, \pi]$, let λ
be a real parameter Let $M_0 = \max_{[0, \pi]} |M(x)|$ and

$$\Lambda_0 = M_0^2 \pi^2 \left(1 + \frac{2}{\sqrt{9+4\pi^2} - 3} \right)^2.$$

Theorem: The eigenvalues of (1) lying on the half line $\lambda \geq \Lambda_0$

Card 1/2

Oscillation Theorems of the Type of Sturm for a Second Order Differential Equation With a Retarding Argument SOV/155-58-2-15/47

form an unlimitedly increasing sequence $\lambda_N, \lambda_{N+1}, \dots, \lambda_{N+p}, \dots$
The eigenfunction corresponding to the eigenvalue λ_{N+p} has exactly $N+p$ zeros on $(0, \pi)$.
Several conclusions of the theorem are given.
There are 2 Soviet references.

ASSOCIATION: Moskovskiy Torfyanoy institut (Moscow Peat Institute)

SUBMITTED: December 15, 1957

Card 2/2

NORKIN, S.B.

Using the method of moments for calculating the eigenvalues and eigenfunctions of a homogeneous boundary value problem with a retarded argument. Nauch.dokl.vys.shkoly; fiz.-mat.nauki no.5:40-46 '58.
(MIRA 12:7)

1. Moskovskiy torfyanoy institut.
(Differential equations) (Eigenvalues) (Eigenfunctions)

ROKIN, S.B.

Letter to the editors. Mat. v shkole no.6:20 H-D '58.

(KIRA 11:12)

(Polyhedra)

SOV/140-58-6-20/27

AUTHOR: Norkin, S.B.
TITLE: On a Boundary Value Problem of the Type of Sturm-Liouville for a Second Order Differential Equation With a Retarding Argument (O krayevoy zadache tipa Shturma-Liuvillya dlya differentsial'nogo uravneniya vtorogo poryadka s zapazdyvayushchim argumentom)
PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. Matematika, 1958, Nr 6, pp 203-214 (USSR)

ABSTRACT: The author investigates the boundary value problem

$$y''(x) + \lambda y(x) + M(x)y(x - \Delta(x)) = 0$$

$$y(0)\cos\alpha + y'(0)\sin\alpha = 0, \quad y(\pi)\cos\beta + y'(\pi)\sin\beta = 0$$

$$y(x - \Delta(x)) \equiv y(0)\varphi(x - \Delta(x)), \quad \text{if } x - \Delta(x) < 0,$$

where $M(x)$ and $\Delta(x) \geq 0$ are continuous functions on $[0, \pi]$, λ is a real parameter, α and β are real numbers, $\varphi(x)$ is a function continuous for $x \leq 0$, $\varphi(0) = 1$. It is shown that the problem has infinitely many positive eigenvalues all being simple. If n is a positive integer and sufficiently large, then in the neighborhood of every n^2 (if $\sin\alpha \neq 0$, $\sin\beta \neq 0$ or $\sin\alpha = 0$, $\sin\beta = 0$) and every $(n + \frac{1}{2})^2$ (if $\sin\alpha \neq 0$, $\sin\beta = 0$)

Card 1/2

On a Boundary Value Problem of the Type of Sturm-Liouville SOV/140-58-6-20/27
for a Second Order Differential Equation With a Retarding
Argument

or $\sin \alpha = 0$, $\sin \beta \neq 0$) respectively, there lies one and only one eigenvalue. Under some further assumptions (bounded $M'(x)$, $\Delta''(x)$ etc.), for every considered case the author gives very exact asymptotic expansions for the eigenvalues. The expansions depend on $\Delta(x)$.

There are 7 references, 6 of which are Soviet, and 1 Roumanian.

ASSOCIATION: Moskovskiy torfyanoy institut (Moscow Peat Institute)

SUBMITTED: December 16, 1957

Card 2/2

AUTHOR: Norkin, S.B. (Moscow) 39-45-1-5/6

TITLE: On Periodic Solutions of Linear Homogeneous Differential Equations of Second Order With Lagging Argument (O periodicheskikh resheniyakh lineynogo odnorodnogo differentsial'nogo uravneniya vtorogo poryadka s zapazdyvayushchim argumentom)

PERIODICAL: Matematicheskiy Sbornik, 1958, Vol 45, Nr 1, pp 71-104 (USSR)

ABSTRACT: The author considers the equation

$$y''(x) + 2\mu y'(x) + \nu y(x) + T(x)y(x-\Delta(x)) = 0$$

in which $T(x)$ and $\Delta(x) \geq 0$ are continuous periodic functions with the period π , where $x - \Delta(x) \geq 0$. General conditions for the existence of periodic solutions are given, in particular the periodic solution which satisfies the initial conditions $y_0(0) = 0$, $y_0'(0) = 1$ is exactly investigated as to existence and stability. 37 theorems and auxiliary theorems are proved. In the manuscript the author took into account remarks of A.D. Myshkis and L.E. El'sgol'ts. There are 5 Soviet references.

Card 1/1
SUBMITTED: December 6, 1956
AVAILABLE: Library of Congress

NORKIN, S.B.

Asymptotic behavior of oscillating solutions to a linear homogeneous differential equation of the second order with a retarding argument. *Nauch.dokl.vys.shkoly; fiz.-mat.nauki no.3*: 48-56 '59. (MIRA 13:6)

1. Kalininskiy torfyanyoy institut.
(Differential equations, Linear)

69478

16.3400

S/055/59/000/05/011/020

AUTHOR: Norkin, S. B.

TITLE: On Periodic Motions of a Class of Oscillation Systems With Lagging Forces

PERIODICAL: Vestnik Moskovskogo universiteta. Seriya matematiki, mekhaniki, astronomii, fiziki, khimii, 1959, No. 5, pp. 109 - 121

TEXT: The author considers the system

$$(A) \quad x''(t) + 2\mu x'(t) + \nu^2 x(t) + T(t) x(t - \Delta(t)) = 0,$$

where $T(t)$, $\Delta(t)$ are nonnegative and continuous on $[0, \infty)$, $T(t + \frac{T}{\omega}) = T(t)$. The delay $\Delta(t)$ is defined by a six-limbed polygonal line (a similar equation was considered by K. F. Teodorchik (Ref.2) for constant $\Delta(t)$). The author gives conditions under which (A) possesses exactly one periodic solution for given initial conditions. Some further related results are given. There are 3 theorems and 5 lemmata.

Card 1/2

69478

S/055/59/000/05/011/020

On Periodic Motions of a Class of Oscillation Systems With Lagging Forces

The author mentions A. D. Myshkis.
There are 2 figures, and 7 Soviet references.

SUBMITTED: April 26, 1958

Card 2/2

4

16(1)

SOV/42-14-1-16/27

AUTHOR:

Norkin, S.B.

TITLE:

On the Solutions of a Homogeneous Second Order Linear
Differential Equation With a Retarding Argument (O resheniyakh
lineynogo odnorodnogo differentsial'nogo uravneniya vtorogo
poryadka s zapazdyvayushchim argumentom)

PERIODICAL: Uspekhi matematicheskikh nauk, 1959, Vol 14, Nr 1, pp 199-206 (USSR)

ABSTRACT: The author considers the equation

$$y''(x) + N(x)y(x) + M(x)y(x - \Delta(x)) = 0,$$

where $M(x)$, $N(x)$, $\Delta(x) \geq 0$ are continuous on $[A, B)$, $-\infty < A < B \leq \infty$.
The author establishes the initial value problem $y(A) = y_0$,

$y'(A) = y_0'$, $y(x - \Delta(x)) \cong y_0 \varphi(x - \Delta(x))$, if $x - \Delta(x) < A$, $\varphi(A) = 1$,

$\varphi(x)$ -continuous, and investigates its solutions. Basing on the
general results of Myshkis [Ref 1] the author obtains a series
of theorems on the linear independence of two solutions, the
distribution of zeros of several solutions, etc. 14 theorems
and 3 lemmas are given altogether.

There are 2 Soviet references.

SUBMITTED: June 3, 1957

Card 1/1

NORKIN, S.P.

Periodic motions of a class of oscillating systems with lagging forces. Vest.Mosk.un.Ser.mat., mekh., astron., fiz., khim. 14
no.5:109-120 '59. (MIRA 13:8)
(Oscillations)

ZVERKIN, A.M.; KALOSHNIY, G.A.; NORKIN, S.B.

Formulation of the initial problem for a differential equation
with a leading argument. Usp. mat. nauk 15 no. 6:133-136
N-D '60. (MIRA 14:2)

(Differential equations--Graphic methods)

NORKIN, S. B.

"On the periodic movements of the class of oscillation systems with delay."

Paper presented at the Intl. Symposium on Nonlinear Vibrations, Kiev, USSR, 9-19 Sep 61

Moscow Lumber Engineering Institute

23578

S/042/61/016/002/004/005

C 111/ C 222

16.3400

AUTHOR: Norkin, S. B.

TITLE: On the solution of a linear inhomogeneous differential equation of second order with a lagging argument

PERIODICAL: Uspekhi matematicheskikh nauk, v. 16, no. 2, 1961, 143-148

TEXT: The author investigates the equation

$$y''(x) + N(x)y(x) + M(x)y(x - \Delta(x)) = f(x) \quad (1)$$

where $M(x)$, $N(x)$, $f(x)$ and $\Delta(x) \geq 0$ are continuous on $[A, B)$ ($-\infty < A < B \leq \infty$). The initial conditions read

$$y(A) = y_A, \quad y'(A) = y'_A \quad (2)$$

$$y(x - \Delta(x)) \equiv y_A \varphi(x - \Delta(x)), \quad \text{if } x - \Delta(x) < A, \quad (3)$$

where $\varphi(x)$ is a fixed initial function which is continuous on E_A ,

$\varphi(A) = 1$. (E_A consists of the point A and the values $x - \Delta(x)$ ($A \leq x < B$) being not greater than A). Under these assumptions there exists a

Card 1/6

23578

S/042/61/016/002/004/005
C 111/ C 222

On the solution of a linear ...

unique solution of (1) on $[A, B)$.

Let the system $u_1(x), u_2(x)$ of the solutions of

$$y''(x) + N(x) y'(x) + M(x) y(x) = 0 \quad (4)$$

be fundamental, i. e. let:

$$W(u_1(A), u_2(A)) = \begin{vmatrix} u_1(A) & u_2(A) \\ u_1'(A) & u_2'(A) \end{vmatrix} \neq 0 \quad (5)$$

The author proposes a modified method of the variation of constants in order to obtain the sought solution of (1) from the general solution of (4).

Let the non-trivial solutions of (4) have no multiple roots on $[A, B)$. Then there exists a unique equation

Card 2/6 $y''(x) + p(x) y'(x) + q(x) y(x) = 0$

23578
S/042/61/016/002/004/005
C 111/ C 222

On the solution of a linear ...

with coefficients continuous on $[A, B)$ so that $u_1(x), u_2(x)$ on $[A, B)$ have a fundamental system of this equation.

Let exist a $\psi(x)$ continuous on $[A, B)$ so that

$$y''(x) + p(x) y'(x) + q(x) y(x) = \psi(x) \quad (7)$$

has at least one solution being a solution of (1) and corresponding to the initial function $\psi(x)$. Then the set of solutions of (1) corresponding to the initial function $\psi(x)$ is identical with the general solution of (7), i. e.

$$y(x) = C_1 u_1(x) + C_2 u_2(x) + z(x) \quad (6)$$

If the variation of constants is carried out for (7) then one obtains

$$z(x) = \int_A^x \frac{\begin{vmatrix} u_1(t) & u_2(t) \\ u_1(x) & u_2(x) \end{vmatrix}}{W(u_1(t), u_2(t))} \psi(t) dt \quad (9)$$

Card 3/6

23578

S/042/61/016/002/004/005

C 111/ C 222

On the solution of a linear ...

Here $\psi(t)$ must be determined from

$$\psi(x) = f(x) + \int_A^x K(x,t) \psi(t) dt \quad (11)$$

X

where

$$K(x,t) = \begin{cases} 0, & \text{if } \inf_{[A,B]} (x-\Delta(x)) \leq t < \max \{A, x-\Delta(x)\}, \\ u_1(t) & u_2(t) \\ M(x) \frac{|u_1(x-\Delta(x)) u_2(x-\Delta(x))|}{W(u_1(t), u_2(t))} & \text{if } \max \{A, x-\Delta(x)\} \leq t \leq x \end{cases}$$

Then the author seeks that solution $y(x)$ of (1) which satisfies

$$y(A) = y_A = \tilde{\varphi}(A), \quad y'(A) = y'_A \quad (12)$$

$$y(x-\Delta(x)) = \tilde{\varphi}(x-\Delta(x)), \quad \text{if } x-\Delta(x) < A, \quad (13)$$

Card 4/6

23578

S/042/61/016/002/004/005

C111/0222

On the solution of a linear . . .

where $\tilde{\varphi}(x)$ is an initial function continuous on E_A . If here on E_A it holds

$$\tilde{\varphi}(x) \equiv y_A \varphi(x) \tag{14}$$

then $y(x)$ again is given by (6). It is shown that if $\tilde{\varphi}(x) \neq y_A \varphi(x)$ then it holds

$$y(x) = C_1 u_1(x) + C_2 u_2(x) + \tilde{z}(x) + v(x) \tag{15}$$

where $\tilde{z}(x)$ -- particular solution of an equation (1) with a variable right-hand side, and $v(x)$ is expressed immediately by the initial data of the solution $y(x)$.

The function $\psi(x)$ can be determined from (11) if $K_0 = \sup |K(x,t)| < \infty$.

If $M_0 = \sup_{[A,B]} |M(x)| < \infty$ and $B < \infty$ then the boundedness of $K(x,t)$ is guaranteed on $[A,B]$ by the absence of multiple zeros of the non-trivial solutions of (4). Let $N(x) \equiv \lambda > 0$ and $B = \infty$.

Card 5/6

X

23578
S/042/61/016/002/004/005
C 111/0222

On the solution of a linear ...

Let $s = \{x \mid x > M, |\varphi(x)| \leq 1\}$ on E_A . Let

$$\begin{cases} u_1(A) = 0, u_1'(A) = 1, \\ u_2(A) = 1, u_2'(A) = 0. \end{cases} \quad (2')$$

X

Then it holds

$$\sup \left\| \begin{matrix} u_1(t) & u_2(t) \\ u_1(x-\Delta(x)) & u_2(x-\Delta(x)) \end{matrix} \right\| < \frac{2s}{(s-M)^2}$$

The author essentially uses his results of (Ref. 2: O resheniyakh lineynogo odnorodnogo differentsial'nogo uravneniya vtorego poryadka s zapazdyvaynshchim argumentom, [On the solutions of a linear homogeneous differential equation of second order with a lagging argument] UMN, 14, no. 1(85)(1959), 199-206.

The author mentions A.M. Zverkin. There are 6 Soviet-also-references.

SUBMITTED: July 28, 1959

Card 6/6

NORKIN, S.B.

Natural frequency of a class of oscillatory systems with delayed forces. Trudy Sem. po teor. diff. urav. s otklen. arg. 1:28-36 '62.

Multiple zeros in the solutions to a homogeneous second-order differential equation with delayed argument. Ibid.:116-119

(MIRA 16:12)

11,5300

1962

S/208/62/002/002/010/014
D234/D301

AUTHOR:

Norkin S.B.

TITLE:

On a case of dependence of delay on the function
which is to be found

PERIODICAL:

Zhurnal vychislitel'noy matematiki i matematicheskoy
fiziki, v. 2, no. 2, 1962, 343 - 348

TEXT:

The author studies the solutions of the differential equation with delayed argument $x''(t) + Ax'(t) + Bx(t) + Cx(t-\Delta(t,x))=0$ ($-\infty < t < +\infty$), A, B, C, being constants. A set of functions G is defined and the dependence $\Delta(t,x)$ is called a dependence of signum type

$$\text{if } \Delta(t, x^*) \equiv \Delta(t-t_0^* + t_0, x_0), \quad t_0^* \leq t \leq t_0^* + k + \varepsilon, \quad (1.2)$$

and

$$\Delta(t, x^*) = 0, \quad t_0^* + k + \varepsilon < t < t_1^*. \quad (1.3)$$

$x^*(t)$ being an arbitrary function from G and $t_0^* < t_0$ and t_1^* its two subsequent zeros. Examples of systems are given, in which the dependence of

Card 1/2

On a case of dependence of delay ... S/208/62/002/002/010/014
D234/D301

delay on the unknown function can be described as that of signum type (combustion in the chamber of a liquid jet engine and systems of the type of electromagnetic interruptor). It is proved that if Δ is of the signum type and several other conditions are satisfied, the general solution of the equation is

$$x(t) = C_1 U(t - C_2) \quad (3.12)$$

$U(t)$ being a solution with the initial values

$$U(0) = 0, \quad U'(0) = 1 \quad (3.4)$$

and C_1 and C_2 being arbitrary constants. Some properties of the solution are deduced.² There are 1 figure and 9 references: 7 Soviet-bloc and 2 non-Soviet-bloc. The reference to the English-language publication reads as follows: A.O. Tischler, D.R. Bellman: Combustion instability in an acid-heptane rocket with a pressurized-gas propellant pumping system. NACA, Techn. Note, no. 2936, 1953

SUBMITTED: June 25, 1961

Card 2/2

J

ZVERKIN, A.M.; KAMENSKIY, G.A.; NORKIN, S.B.; EL'SGOL'TS, L.E.

Differential equations with deviating argument. Usp.mat.nauk.
17 no.2:77-164 Mr-Apr '62. (MIRA 15:12)
(Differential equations)

37525

S/039/62/057/001/002/002
B125/B112

16 3400
16.3800

AUTHOR: Norkin, S. B. (Moscow)

TITLE: Oscillating solutions for a linear homogeneous differential equation of the second order with a retarded argument

PERIODICAL: Matematicheskii sbornik, v. 57 (99), no. 1, 1962, 59-74

TEXT: The author considers the asymptotic behavior of the oscillating solutions $y = C_1 y_1(t) + C_2 y_2(t)$ of the equation $y''(t) + Ay(t) + M(t)y(t - \Delta(t)) = 0$ (0.1) with the initial conditions $y(A) = y_A, y'(A) = y'_A, y(t - \Delta(t)) \equiv y_A(t - \Delta(t))$. These solutions satisfy the condition $t - \Delta(t) > A (A \leq t < \infty)$ for the retardation $\Delta(t)$. The functions $M(t)$ and $\Delta(t) \geq 0$ are continuous for $A \leq t < \infty$, and Δ is a positive parameter. The fixed initial function $\varphi(t)$ is continuous on the initial set E_A , and $\varphi(A) = 1$. One important result obtained for the asymptotic behavior of the zeros and for the applicability of the oscillating, non-periodic solutions of Eq. (0.1) to

Card 1/3

S/039/62/057/001/002/002
B125/B112

Oscillating solutions for a linear ...

the various types (1) $\lim_{t \rightarrow \infty} r(t) = \infty$, (2) $\lim_{t \rightarrow \infty} r(t)$, and
(3) $B < r(t) < C (A \leq t < \infty, B > 0, C > 0)$ is the following: The inequality

$s = \sqrt{\lambda} \geq 2\sqrt{2} \left(\int_A^{\xi_1} |M_1(t)| dt + M_2 \right)$ is sufficient for a non-vanishing Wronski
determinant $W(y_1, y_2)$ for $[A, \infty)$. Here, A denotes a series of points

$A = t_0, t_1, t_2, \dots, t_k$, increasing to the right without limit, and
 $M(t) \equiv M_1(t) + M_2(t)$ with $\{\xi_k\} \subset \{t_k\}$. If there is a point $t^0 \geq 0$ such that
 $M(t) \geq 0 (t^0 \leq t < \infty)$, then Eq. (0.1) will be φ -oscillatory. This means
that all the non-trivial solutions corresponding to the initial function
 $\varphi(\xi)$ change signs in any interval (a, ∞) . If also $t - \Delta(t) \geq A (A \leq t < \infty)$
is valid, Eq. (0.1) will be oscillatory, which means that all non-trivial
solutions of Eq. (0.1) change signs in this manner. If now Eq. (0.1) is
assumed to satisfy the conditions $t - \Delta(t) \geq A (A \leq t < \infty)$ (0.5),

$M(t+\omega) \equiv M(t) \geq 0, \Delta(t+\omega) \equiv \Delta(t) (0 \leq t < \infty)$, and $s = \sqrt{\lambda} \geq 2\sqrt{2} M_0 \omega$ with

Card 2/3

Oscillating solutions for a linear ...

S/039/62/057/001/002/002
B125/B112

$M_0 = \max M(t)$, then Eq. (0.1) will have solutions of the first and second types only. For every non-trivial solution $y(t)$ of Eq. (0.1), a sequence $\{t_n^{(i)}\}$ of zeros of this solution corresponds to every zero

$t^{(i)}$ ($i = 1, 2, \dots, m$) of the function $\varphi_1(t)$ on the semi-interval $[A, A+\omega)$. Consequently, $t_n^{(i)} \sim \omega n$ is valid. Also $|y^{(i)}(t)| \leq B_i e^{\mu(t-A)}$ ($i = 0, 1; A \leq t < \infty$), where B_i is a constant, is valid where $\sup_{[A, \infty)} |M(t)| = M_0 < \infty$

and where several other conditions are satisfied as here detailed. In the case of damped retardation ($\Delta(t+\omega) \equiv \rho \Delta(t)$), the expression $t_n \sim \pi n / (\sqrt{\lambda + M_0})$ is shown to be valid for every non-trivial solution of Eq. (0.1). If the further conditions $0 \leq M(t) \leq M_0$ and $s = \sqrt{\lambda} \geq (2 + \sqrt{5})M$ are imposed, all non-periodic solutions of Eq. (0.1) belong to the third type.

SUBMITTED: October 27, 1960

Card 3/3

ZVERKIN, A.M.; KAMENSKIY, G.A.; ROZKIN, S.B.; EL'SGOLITS, I.F.

Differential equations with delay. Part 2. Izv. Sem. po teorii
diff. urav. s otklad. arg. 2:3-49 '63.

(NINA 18:1)

NORKIN, S.B.

Oscillation of the solutions to a linear homogeneous differential equation of the second order with delay. Trudy Sem. po teor. diff. urav. s otklon. arg. 2:68-81 '63.

Boundary value problem for a differential equation of the second order with delay on the semiaxis. Ibid.:162-171

Structure of the set of zeroes of solutions to a linear homogeneous differential equation of the second order with delay.
Ibid.:243-248

(MIRA 18:2)

EL'SGOL'TS, 'ev Ernestovich ; NORKIN, S.B., red.

[Introduction to the theory of differential equations with retarded argument] Vvedenie v teoriiu differentsial'nykh uravnenii s otkloniayushchimsia argumentom. Moskva, Izd-vo "Nauka," 1964. 127 p. (MIRA 17:5)

NOREIN, S.B. (Moscow)

"Oscillations of a system with self-regulating delay"

Report presented at the 2nd All-Union Congress on Theoretical and Applied Mechanics, Moscow 29 Jan - 5 Feb 64.

NORKIN, S.B.

Coalescence of the solutions of a homogeneous differential
equation of the second order with retarded argument. Prikl.
metod. resh. diff. urav. no.1:82-89 '63 (MIRA 18:2)

NORKIN, Sim Borisovich; OZHIGANOVA, I.A., red.

[Differential equations of the second order with delayed argument; some problems in the theory of oscillations of systems with a delay] *Differentsial'nye uravneniia vtorogo poriadka s zapazdyvaiushchim argumentom; nekotorye voprosy teorii kolebanií sistem s zapazdyvaníem.* Moskva, Nauka, 1965. 354 p. (MIRA 18:9)

ZEL'DOVICH, Yakov Borisovich, akademik; SEMENDYAYEVA, K.A., red.;
NORKIN, S.B., red.

[Higher mathematics for beginners and its applications to
physics] Vysshaya matematika dlia nachinaushchikh i ee
prilozhenia k fizike. Moskva, Nauka, 1965. 575 p.
(MIRA 18:9)

NORKIN, S.B.

Oscillations of a system with self-regulating delay. Trudy Sem.
po teor. diff. urav. s otklon. arg. 3:71-118 '65.

Use of the method of moments in calculating the eigenvalues and
eigenfunctions of certain boundary value problems with time lag.
Ibid.:233-238 (MIRA 19:1)