APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R001755020010-0"

SOV/112-58-3-4291

8(0)

Translation from: Referativnyy zhurnal. Elektrotekhnika, 1958, Nr 3, p 125 (USSR)

AUTHOR: Tartakovskiy, G. P.

TITLE: On the Analysis of Intermittent Variable-Parameter Control Systems (K analizu sistem preryvistogo regulirovaniya s peremennymi parametrami)

PERIODICAL: Sessiya AN SSSR po nauchn. probl. avtomatiz. proiz-va, 1956, Vol 2, M., AS USSR, 1957, pp 254-255

ABSTRACT: Principles of the theory of pulse linear systems with variable parameters are considered. The concept of impulse reaction of the continuous part of the system underlies the theory of both variable-parameter and constant-parameter systems. The impulse reaction is considered here as a function of two discrete variables: the present time coordinate and the pulse application duration. Methods of determining the pulse-system characteristics as functions of various parameters are presented, methods of finding the system reaction on the basis of such characteristics are indicated, the variable-

Card 1/2

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SOV/112-58-3-4291

8(0)

On the Analysis of Intermittent Variable-Parameter Control Systems

parameter system stability conditions are examined, and the random processes in such systems are considered.

M.M.S.

Card 2/2

AUTHOR: Tartakovskiy, G.P.

TITLE: Stability of Linear Pulse Systems Having Variable Parameters (Ustoychivost' lineynykh impul'snykh sistem s peremennymi parametrami)

PERIODICAL: Radiotekhnika i elektronika, 1957, Vol 2, Nr 1. pp 15-22 (USSR)

ABSTRACT: It is shown how the stability conditions for a constant-parameter pulse system can be extended to cover the case of variable-parameter systems. In order to analyze the stability of a variable-parameter system having a pulse feedback, the transfer function of that system is deduced. The findings are illustrated by an example of a pulse-feedback system with a pulse repetition-rate modulation which has some applications in radio engineering. A linear variable-parameter pulse system is a two-element system whose first, "pulse" element converts a continuous input stimulation into a series of pulses which are amplitude-modulated by the stimulation; the second element is a "linear circuit". Properties of a variablo-parameter pulse system are determined by these characteristics: pulse reaction, transfer function, and frequency characteristic. The purpose of the article is to find mathematical conditions under which the variablo-parameter pulse system is stable. A linear variable-parameter pulse system may be considered as stable if its reaction to any limited input stimulation will also be limited (subhead 2 of the article). The above condition follows from an analysis of the finite-difference equations which describe such systems. It is easier, however, to

Thursday, September 26, 2002 CIA-RDP86-00513R001755020010-0"

Stability of Linear Pulse Systems Having Variable Parameters

arrive at the stability conditions by a simple extension of the stability criteria which are used for constant-parameter systems. A mathematical treatment follows along the lines of that given by James, Nicols, and Philips (Ref 3). The mathematical condition for stability of a variable-parameter pulse system is this: At any moment n the transfer function H(q,n) will have no poles in the right semiplane or on the imaginary axis of the q-plane if the hodograph of the frequency characteristic H(jx,n), with x being within the range of $-\pi$ to $+\pi$, does not embrace the origin of coordinates. Such an approach to the analysis of stability is particularly expedient in case of a pulse-backfeed system. As the analysis of stability of a variable-parameter pulse system with a pulse backfeed requires the knowledge of its transfer function, a deduction of the latter is offered under the subhead 3 of the article. A finite-difference equation for an open pulse system is developed, and the transfer function is found in the first approximation. In conclusion, a pulse-backfeed system with a variable pulse rate is considered. The differential equation of the "linear" section of the system is solved for a particular practical case of pulse repetition-rate modulation. Use of the repetition-rate characteristic hodograph in a stability analysis is demonstrated. There are four figures and five references, three of which are Soviet and two American.

SUBMITTED: July 10, 1956

AVAILABLE: Library of Congress

Card 2/2 1. Pulse amplifiers--Theory 2. Pulses--Modulation 3. Pulses--Mathematical analysis

TARTAKOVSKIY, G.P.

109-4-2/20

AUTHOR: Tartakovskiy, G.P.

TITLE: Stationary Random Processes in Linear Pulse Systems with Variable Parameters. (Statsionarnyye sluchaynyye protsessy v lineynykh sistemakh s peremennymi parametrami)

PERIODICAL: Radiotekhnika i Elektronika, 1957, Vol.2, No.4, pp. 380 - 388 (USSR).

ABSTRACT: The paper is based on the theory of Ya.Z. Tsypkin [Ref.1] and also employs some of the formulae derived by the author in an earlier article [Ref.7]. The problem discussed is as follows: The input signal is in the form of random pulses (random amplitude modulation), whose average spacing is T_r ; the linear system to which the pulses are applied is also subject to random variations (e.g. variation of gain, etc.). Since the receiving linear system responds to the input signal $u_{in}(t)$ only at discrete time intervals, which are equal to $t = nT_r$ (where $n = 0, 1, 3 \ldots$) the signal $u_{in}(t)$ can be considered as a discrete random process, i.e. $u_{in}(t) = u_{in}(n)$, where n is referred to the "dimensionless time". The signal $u_{in}(u)$

Card 1/6 is characterised by its mathematical expectancy:

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R001755020010-0"

Stationary Random Processes in Linear Pulse Systems with Variable Parameters.

$$M_{in} = \lim_{N \to \infty} \frac{1}{2N + 1} \sum_{n = -N}^{N} u_{in}(n) \qquad (2)$$

and its correlation function:

$$k_{in}(m) = R_{in}(m) - M_{in}^2 \qquad (3)$$

where:

$$R_{in}(m) = \lim_{N \to \infty} \frac{1}{2N + 1} \sum_{n = -N}^{N} u_{in}(n)\, u_{in}(n + m) \qquad (4)$$

The receiving system is described by a function $H(jx, n)$, where $X = \omega T$ is the so-called "dimensionless frequency". The signal at the output $u_{out}(n)$ can also be characterised by its mathematical expectancy M_{out} and its correlation function

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R001755020010-0"

Stationary Random Processes in Linear Pulse Systems with Variable Parameters.

$k_{out}(m)$. It is shown that these parameters are expressed by

$$M_{out} = M_{in} M_H \qquad (16)$$

where:

$$M_H = \lim_{N \to \infty} \frac{1}{2N+1} \sum_{n=-\infty}^{N} H(0, n) \qquad (15)$$

and

$$k_{out}(m) = R_{out}(m) - M_{out}^2 \qquad (27)$$

in which:

$$R_{out}(m) = \frac{1}{2\pi} \int_{-\pi}^{\pi} R_H(x, m) S_{in}(x) e^{jxm} dx \qquad (25)$$

where:

$$R_H(x, m) = \lim_{N \to \infty} \frac{1}{2N+1} \sum_{n=-N}^{N} H(-jx, n) H(jx, n+m) \qquad (24)$$

Card 3/6

Stationary Random Processes in Linear Pulse Systems with Variable Parameters.

and;

$$S_{1in}(x) = \lim_{N\to\infty} \frac{1}{2N+1} \sum_{n=-N}^{N} \frac{1}{2\pi} \int_{-\pi}^{\pi} U_{in}(jx')U_{in}(jx)e^{jx'n}e^{jx(n+m)}dx'dx \qquad (20)$$

while $U_{in}(jx)$ is the Fourier transform of $u_{in}(n)$.

The above expressions are used to determine the output signal of a system, in which the input is characterised by:

$$M_{in} = U_o \qquad (32)$$

and:

$$k_{in}(m) = \sigma^2 e^{-\beta|m|} \qquad (33)$$

and whose transfer function is given by:

$$H_L(jx, \tau) = \frac{K(\tau)}{1 + jx\frac{T}{T_r}} \qquad (36)$$

Card 4/6

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R001755020010-0"

Stationary Random Processes in Linear Pulse Systems with Variable Parameters.

where $K(\tau)$ is the randomly-changing gain of the system and T is its equivalent time constant. It is shown that the output signal correlation function is given by:

$$k_{out}(m) = R_{out}(m) - \left(\frac{u_o K_o C}{e^{\alpha} - 1}\right)^2 = R_{out}(m) - M^2_{out}$$

where:

$$C = e^{\gamma\alpha} - 1 \ , \ \alpha = \frac{T_r}{T} \ , \ \gamma = \frac{T_u}{T_r}$$

and T_u is the length of the input pulses, while K_o is the average gain of the system. The term $R_{out}(m)$ of the correlation function is expressed as a sum of $R^{1}_{out}(m)$ and $R^{11}_{out}(m)$, where $R^{1}_{out} = M^2_{out} R_c(m)$ in which $R_c(m)$ is assumed to be in the form:

Card 5/6 $$R_c(m) = K_o^2 + \sigma_c^2 e^{-\beta_c |m|} \ .$$ (45) and (46)

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R001755020010-0"

Stationary Random Processes in Linear Pulse Systems with Variable Parameters.

The second term is expressed as:

$$R^{11}_{out}(m) = \frac{\sigma^2 C^2}{e^{2\alpha} - 1} R_c(m)(Ae^{-\alpha|m|} + Be^{-\beta|m|}) \qquad (55)$$

in which A and B are known functions of α and β. The expression for $k_{out}(m)$ is neither discussed nor interpreted, nor shown graphically. The paper contains 9 references, of which 7 are Slavic.

SUBMITTED: September 11, 1956.

AVAILABLE: Library of Congress.

Card 6/6

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R001755020010-0"

TARTAKOVSKIY, G.P.

Effect of fluctuation noises of reflected signals on range radars. Inzh.-fiz. zhur. no. 6:27-39 Je '58. (MIRA 11:7)

(Range finding)
(Radar--Noise)

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R001755020010-0"

SOV/109-3-10-8/12

AUTHOR: Tartakovskiy, G.P.

TITLE: Non-stationary, Random Processes in Linear Pulse Systems With Variable Parameters (Nestatsionarnyye sluchaynyye protsessy v lineynykh impul'snykh sistemakh s peremennymi parametrami)

PERIODICAL: Radiotekhnika i Elektronika, 1958, Vol 3, Nr 10, pp 1287 - 1297 (USSR)

ABSTRACT: The work deals with the analysis of random processes in linear systems, in which the input signal is in the form of a train of rectangular pulses. The amplitudes of the pulses and their repetition period T_{ch} and their duration T_{i} are (in general) variables and the laws of their variation can be represented as random or regular (non-random) processes. The parameters of the linear systems can also be variable and can be described either by random or regular time functions. In the analysis of such systems, it is possible to employ the concept of a pulse system consisting of a pulse element and a linear section (Figure 1). It is assumed that the input perturbation $u_{BX}(t)$ is converted into a rectangular train of pulses

Card1/7

by means of the pulse element; the resulting signals $u_{BX\Pi}(t)$ are applied to the linear section. The problem of determining the statistical characteristics of non-stationary, discrete, random processes at the output of a pulse system with variable parameters can be solved by means of the theory of canonic representation of random processes, as proposed by V.S. Pugachev (Ref 5). A discrete, random function, u(n), can be characterised by its mathematical expectancy and its correlation function. The mathematical expectancy is expressed by:

$$M_u(n) = M[u(n)] = \int_{-\infty}^{+\infty} u f_1(u, n) du \qquad (1)$$

where $f_1(u, n)$ is a uni-dimensional, differential, probability distribution law. The correlation function is expressed by:

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R001755020010-0"

$$K(n, r) = M\left\{[u(n) - M_u(n)][u(n + r) - M_u(n + r)]\right\} = \int_{-\infty}^{+\infty}\int_{-\infty}^{+\infty}[u - M_u(n)][u' - M_u(n + r)]f_2(u, u', n, r)du\, du' \quad (2)$$

where f_2 is a two-dimensional, differential, probability distribution law, while n and r are integers. The discrete, random function can be expanded into Eq.(3), where U_ν is a random, non-correlated quantity having a mathematical expectancy equal to zero, while $\varphi_\nu(n)$ is a non-random, discrete function (co-ordinate function). The canonic expansion of the correlation function is given by Eq.(4), where D_ν is the deviation of the random quantities U_ν as defined by Eq.(5). The random function u(n) can also be represented by Eq.(6) and the

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R001755020010-0"

correlation function by Eq.(7), where the quantity $S(x)$ can be found from Eq.(8), in which $\delta(x)$ is the Dirac function. For the stationary, discrete random functions, u(n) can be written as Eq.(9) and the correlation function as Eq.(10). If it is assumed that the input perturbation and the variation of the parameters of the linear system are independent and that the input perturbation is a quasi-stationary, random, discrete process, this can be expressed in the canonic form by Eq.(11), where a and M are slowly changing functions of n ; the canonic representation of the correlation function is given by Eq.(12), where S and U are related by Eq.(8). The characteristics of a pulse system with variable parameters can be described by a frequency characteristic $H(jx, n)$ or by an impulse characteristic $H_1(\Delta, n)$. Consequently, if the input signal is in the form of Eq.(11), the output signal is given by Eq.(14); this can be approximately represented by Eq.(16). The mathematical expectancy of the output signal is expressed by Eq.(18) or, if the parameters undergo a regular variation, the expectancy is in the form of Eq.(20).

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R001755020010-0"

The correlation function for the output signal is described by Eq.(31). If the parameters of the system vary in a regular manner, the correlation function is given by Eq.(32). Formulae (18) and (31) can be used to analyse the response of a pulse system with variable parameters. When the input signal is in the form of a stationary, random, discrete process, [illegible] the output expectancy is given by Eq.(35) and the correlation function by Eq.(36). If the variation of the parameters of the system is also in the form of a stationary process, the expectancy and the correlation function are given by Eqs.(37) and (38), respectively. For a pulse system with constant parameters, the correlation function is given by Eq.(39). The average value of the correlation function of a non-stationary, discrete process at the output of a pulse system with variable parameters can be found from Eq.(43). If the parameters of the system undergo a regular variation (in particular, periodic variation) and the input signal is a stationary, random process, the average value of the correlation function is expressed by Eq.(47). The above

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R001755020010-0"

formulae can be employed to analyse the performance of a pulse-frequency modulation receiver, when the input signal consists of pulses and noise. The receiver consists of a linear amplifier having a gain K_0, a demodulator with a time constant T and a gating circuit. It is assumed that the repetition frequency of the pulses is expressed by Eq.(49) so that the frequency characteristic is given by Eq.(50) (Ref 2), where h_0, α and β are expressed by Eq.(51) and I_0 and I_1 are the modified Bessel functions. On the basis of Eq.(20), the mathematical expectancy of the output signal is expressed by Eq.(52), while on the basis of Eq.(32), the correlation function is given by Eq.(54), where functions f and φ are defined by Eqs.(55). The dispersion of the output signal is defined by Eq.(56) and the average value of the correlation function is given by Eq.(58).

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R001755020010-0"

SOV/109-3-10-8/12

Non-stationary, Random Processes in Linear Pulse Systems with Variable Parameters

There are 2 figures and 6 Soviet references, 4 of which relate to papers published by the author.

SUBMITTED: February 9, 1957

Card 7/7 1. Pulses--Analysis

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R001755020010-0"

AUTHORS: Tartakovskiy, G. P., Sergiyenko, Yu. M. 108-1-6/10

TITLE: The Effect of a Series of Impulses Modulated by a Random Process on an Inert Pulse Detector (Vozdeystviye posledovatel'nosti impul'sov, modulirovannykh sluchaynym protsessom, na inertsionnyy impul'snyy detektor)

PERIODICAL: Radiotekhnika, 1958, Vol. 13, Nr 1, pp. 62-68 (USSR)

ABSTRACT: It is shown that with sufficiently wide assumptions the pulse detector is equivalent to a linear pulse circuit and therefore can be characterized by a transmission function. The formulae obtained for this function permit to determine the reaction of the detector to a random regular series of pulses for which the demanded restrictions are satisfied by means of the equations deduced here, (8) and (9) (or (10) and (11)) the values of the detector output voltage $U_2(t)$ can be determined at the moment of the formation or the ending reps. of pulses. As the found points of the initial ending resp. of pulses. As the found points of the initial curve are connected with the time constant T_0 (during pulses) and T (between pulses) by the exponential

Card 1/3

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R001755020010-0"

curve sections the curve $U_2(t)$ can easily be found. The transmission function of the pulse detector makes it possible to find also the statistical characteristics of the random process at the output according to given statistical characterstics of the process at the detector input.- Then the pulse detector is investigated under the influence of a series of pulses modulated by a steady random process. The formula (22) for the spectral density F(x) is deduced. This spectral density of the random process at the output of the pulse detector is equal to the product of: 1.- The density of the discreet steady random process at the input.- 2.- The square of the modulus of the detector frequency characteristics and 3.- The energy spectrum of the "pulse" of the single amplitude, the duration T_s (sequence period) and one form limited by two exponential sections. From this follows that the spectral density of a discreet random process coincides with an energy spectrum of a sequence of δ-functions (of practically very short pulses) which are modulated according to the corresponding law. Finally the spectral density of the

The Effect of a Series of Impulses Modulated by a Random Process on an Inert Pulse Detector 108-1-6/10

process at the pulse detector output is investigated with a simple form of the process correlation function at the input. The formula (29) obtained here can physically easily be understood when the equivalence of the pulse detector with the pulse circuit with a linear part in form of an inert member is taken into account.
There are 7 figures, and 5 references, 5 of which are Slavic.

SUBMITTED: November 27, 1956

AVAILABLE: Library of Congress

1. Impulse modulations-Effects 2. Mathematical analysis

Card 3/3

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R001755020010-0"

TARTAKOVSKIY, G. P.

28(1) SOV/30-59-1-48/57

AUTHOR: Morosanov, I. S.

TITLE: Development of the Theory and the Application of Discreet Automatic Systems (Razvitiye teorii i primeneniy diskretnykh avtomaticheskikh sistem)

PERIODICAL: Vestnik Akademii nauk SSSR, 1959, Nr 1, pp 138-139 (USSR)

ABSTRACT: The conference dealing with this problem took place in Moscow from September 22 to 26, 1958 and was opened by V. A. Trapeznikov, chairman of the Natsional'nyy komitet SSSR po avtomaticheskomu upravleniyu (National Committee of the USSR for Automatic Control). In the Plenary Meeting Ya. Z. Tsypkin reported on discreet automatic systems and their development prospects. The work of the conference was undertaken by 5 sections. Reports were held by:
G. P. Tartakovskiy and V. P. Perov reported on new investigation results in the case of pulse systems with variable parameters.
Fan Ch'ung-wui dealt in his report with his successful procedures of analysis of pulse systems with several elements.
F. M. Kilin spoke about the problem of an increase of the perturbation stability of the systems.

Card 1/3

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R001755020010-0"

Development of the Theory and the Application of Discreet Automatic Systems

Ya. Z. Tsypkin investigated the possibilities of pulse systems. A. A. Krasovskiy investigated one of the possible ways of constructing an automatic control system with a discreet correcting device.

E. A. Krogius analysed pulse systems.

I. V. Pyshkin investigated the conditions of eigen oscillations (avtokolebaniye) in a system with wide range pulse modulation. Yu. V. Dolgolenko reported on the method of determining parameters of a boundary cycle for an extreme system.

V. V. Kazakevich dealt with the results of approximation calculation methods of extreme systems.

A. A. Fel'dbaum investigated the influence of perturbations. A. G. Butkovskiy and S. M. Domanitskiy reported on the construction of optimum control systems for objects with retardation.

G. A. Nadzhafova investigated methods of determining the maximum rapid effect of control systems.

O. G. Varshavskiy spoke about the construction of an automatic machine for objects with retardation which permits the best possible control systems.

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R001755020010-0"

M. A. Gavrilov analyzed modern telemechanical equipment from the viewpoint of the so-called "finite automatic machines" (consisting of systems of a finite number of elements).
P. P. Parkhomenko reported on the effect and construction of a special logical machine for the analysis of relay orders.
Yu.Ya. Bazilevskiy investigated accurate "finite automatic machines" which in the case of an unvariable structure furnish arbitrary items of several arguments.
G. K. Berends and A. A. Tal' reported on a pneumatic system of elements of "finite automatic machines" with the logical elements described as "not", "and", "or" by means of which further logical functions can be put into practice.
The participants in the conference considered the technical working out of the papers presented to them insufficient. In the last session the heads of the committees summarized the results obtained at the conference and briefly mentioned the important tasks in further developing the theory and the application of discreet automatic systems.

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R001755020010-0"

LAKHANOVSKIY, G.P.

PHASE I BOOK EXPLOITATION SOV/4411

Konferentsiya po voprosam teorii i primeneniya diskretnykh avtomaticheskikh sistem, Moscow, 1958

Teoriya i primeneniye diskretnykh avtomaticheskikh sistem; trudy konferentsii (Theory and Application of Discrete Automatic Systems; Transactions of the Conference) Moscow, AN SSSR, 1960. 572 p. 5,000 copies printed.

Sponsoring Agency: Akademiya nauk SSSR. Natsional'nyy komitet SSSR po avtomaticheskomu upravleniyu. Institut avtomatiki i telemekhaniki.

Editorial Board: M.A. Gavrilov, Doctor of Technical Sciences, Yu.V. Dolgolenko, Doctor of Technical Sciences, V.A. Kotel'nikov, Candidate of Technical Sciences, A.Ya. Lerner, Doctor of Technical Sciences, I.S. Morosanov (Scientific Secretary), G.S. Pospelov, Doctor of Technical Sciences, A.A. Fel'dbaum, Doctor of Technical Sciences, A.V. Khramoy, Candidate of Technical Sciences, and Ya.Z. Tsypkin, Doctor of Technical Sciences; Resp. Ed.: Ya.Z. Tsypkin, Doctor of Technical Sciences; Ed. of Publishing House: M.L. Podgoyetskiy; Tech. Ed.: S.G. Markovich.

PURPOSE: These transactions are intended for the members of the conference and other specialists in automatic control.

COVERAGE: The Conference on the Problems of Theory and Application of Discrete Automatic Systems took place in Moscow from September 22 to 26, 1958. It was the first conference devoted to discussions of the present status of the theory and techniques of discrete automatic systems and to planning for future development. The papers discussed at the conference have been divided into four groups. In the first group optimization switching circuits are discussed as well as methods of relay control systems, in particular plant lag control systems in which are realized optimal processes as to quick response. The second group of papers is devoted to the analysis and synthesis of pulse systems with variable parameters, of pulse systems with several pulse components, to the study of self-oscillation phenomena in nonlinear pulse systems, and to the methods of calculating linear pulse systems. Problems of simulating pulse systems and descriptions of some pulse regulators have also been included. The third group of papers deals with digital systems. Problems of using elements of digital technique and digital computers for the automation of various fields of engineering, i.e., power engineering, mining, radio communication, metallurgy, etc., are discussed. Problems of analog-digital conversion and vice versa as well as problems of developing specialized functional converters have been included in this group. The fourth group of papers includes theoretical elements and certain practical applications of the simplest types of self-adjusting systems, optimalizing control systems, which are developed as relay, pulse and digital devices. Here are also found papers describing various methods of investigating steady state conditions in optimalizing systems, results of studying the effects of random factors on the process of automatic scanning, and examples of existing optimalizing control systems. Some of the more interesting communications and observations made during the discussion of the various conference papers have also been included in the Transactions. Personalities and references accompany most of the papers.

II. PULSE SYSTEMS

Lakhanovskiy, G.P. (Moscow). Elements of the Theory of Linear Pulse Systems With Variable Parameters 65

The theory of pulse systems with variable parameters includes: 1) finding the reaction of the variable pulse system to regular input stimuli in both transient and steady conditions; 2) investigating the stability of the system class under consideration; 3) analysis of stationary and nonstationary random processes in these systems. As an example, the author examines the problem of computing the correlation function of the process occurring at the output of a pulse radar range finder. There are 12 references: 11 Soviet (including 2 translations), and 1 English.

Kilin, F.M. (Leningrad). Certain Problems of Analysis and Synthesis of Pulse Systems With Variable Parameters Changing by Jumps 80

The discrete change of variable parameters is described by piecewise - constant functions. The author discusses these functions and develops methods of analyzing them. He concludes that discrete systems of automatic regulation possess more extensive possibilities for improving the accuracy of regulation during strong interferences than do continuous systems. There are 13 references, all Soviet.

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S/109/61/006/004/005/025
E140/E163

AUTHOR: Tartakovskiy, G.P.

TITLE: Frequency-modulated range finder in the presence of noise and reflected signal fluctuations

PERIODICAL: Radiotekhnika i elektronika, Vol.6, No.4, 1961, pp. 536-544

TEXT: The author considers the operation of a frequency-modulated range finder in the presence of noise and fluctuations of the reflected signal, i.e. operation under real conditions. After an involved analysis, he finds that under the usually pertaining relations among the parameters, the errors of such systems are very small. At the same time, where needed, further improvements over existing systems may be obtained by including variable narrow-band filters in the system, with the center frequency variable according to the distance being measured. Acknowledgements are expressed to V.G. Repin for valuable remarks in connection with the work. B.P. Levin and V.I. Bunimovich are mentioned for their contribution in this field.
There are 3 figures and 3 Soviet references.

SUBMITTED: January 28, 1960

Card 1/1

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R001755020010-0"

BAKUT, P.A.; BOL'SHAKOV, I.A.; GERASIMOV, B.M.; KURIKSHA, A.A.; REPIN, V.G.; TARTAKOVSKIY, G.P., prof.; SHIROKOV, V.V.; ALEKSANDROVA, A.A., red.; BELYAYEVA, V.V., tekhn. red.

[Problems of the statistical theory of radar] Voprosy statisticheskoi teorii radiolokatsii. [By] P.A.Bakut i dr. Pod obshchei red. G.P.Tartakovskogo. Moskva, Sovetskoe radio. Vol.1. 1963. 423 p. (MIRA 16:5)

(Radar)

BAKUT, P.A.; BOL'SHAKOV, I.A.; GERASIMOV, B.M.; KURIKSHA, A.A.; REPIN, V.G.; TARTAKOVSKIY, G.P., prof.; SHIROKOV, V.V.; ALEKSANDROVA, A.A., red.

[Problems in statistical radar theory] Voprosy statisticheskoi teorii radiolokatsii [By] P.A.Bakut i dr. Moskva, Sovetskoe radio. Vol.2. 1964. 1078 p. (MIRA 17:9)

TARTAKOVSKIY, G. I

L 45828-65 EEO-2/EWT(1)/EEC(t)/EED-2 Pm-4/Pn-4/Pac-4/Pi-4/Pj-4/Pk-4/Pl-4 S/ 59 B+1

WR

BOOK EXPLOITATION

ACCESSION NR AM5002719

Bakut, P. A.; Bol'shakov, I. A.; Gerasimov, B. M.; Kuriksha, A. A.; Repin, V. G.; Tartakovskiy, G. P.; Shirokov, V. V.

Problems of the statistical theory of radar (Voprosy statisticheskoy teorii radiolokatsii), v. 2., Moscow, Izd-vo "Sovetskoye radio", 1964, 1078 p. illus., biblio., index. Errata slip inserted. 6,000 copies printed.

TOPIC TAGS: radar, statistical theory

PURPOSE AND COVERAGE: The second volume of the book is devoted to the theory of radar measurements and problems of target resolution. A general theory of radar measurements is developed which contains the analysis of tracking and nontracking measurement systems, linear and nonlinear, and the synthesis of optimal systems of measuring the motion parameters of targets which change over time and their combinations. On the basis of this theory, the book presents an analysis and synthesis of long-range systems, systems of speed measurement, and angular measurement systems. Coherent and incoherent signals are investigated. In considering the problems of target resolution, the possibility of resolving reflected signals is studied and optimal receivers in this respect are found. Optimal resolution systems in detection and measurement of

Card 1/2

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R001755020010-0

L 45828-65

ACCESSION NR AM5002719

coordinates are also investigated. The book is intended for researchers and engineers concerned with problems of radar and for students and graduate students. Many problems of the general theory are also of interest to those concerned with theoretical problems in all fields based on the theory of statistics, particularly in automatic control.

TABLE OF CONTENTS [abridged]:

Ch. VI. General regularities of radar measurements — 3
Ch. VII. Measurement of range with a coherent signal — 255
Ch. VIII. Measurement of range with an incoherent signal — 432
Ch. IX. Measurement of speed — 523
Ch. X. Measurement of angular coordinates with a coherent signal — 648
Ch. XI. Measurement of angular coordinates with an incoherent signal — 823
Ch. XII. Joint measurement of several coordinates — 869
Ch. XIII. Resolution — 960
Bibliography — 1068
Subject Index — 1072

Card 2/3

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R001755020010-0"

TARTAKOVSKIY, G.P.

Synthesis of a receiver of light signals in the heterodyning of light. Probl. pered. inform. 1 no.3:56-70 '65.
(MIRA 18:11)

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R001755020010-0"

DEORDIYEV, Nikolay Trifonovich; TARTAKOVSKIY, I.A., kand.tekhn.nauk, ZAPOROZHCHENKO, V.A., inzh., red.; ONISHCHENKO, N.P., red.

[Shaping parts by reduction methods] Obrabotka detalei redutsirovaniem. Moskva, Gos.nauchno-tekhn.izd-vo mashinostroit.lit-ry, 1960. 155 p. (MIRA 13:7)
(Forging)

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R001755020010-0"

VORONTSOV, Ivan Aleksandrovich; YEVSIKOV, Anatoliy Vasil'yevich; POPOV, Viktor Yakovlevich; TARTAKOVSKIY, Il'ya Borisovich; YEGORKINA, L.I., inzhener, redaktor; SOKOLOV, I.P., inzhener, retsenzent; POPOVA, S.M., tekhnicheskiy redaktor

[Technology of repairing diesel engines (Models B2-300 and D6)] Tekhnologiia remonta dizelei (tipa V2-300 i D6). Moskva, Gos. nauchno-tekhn. izd-vo mashinostroitel'noi lit-ry, 1956. 335 p. (Diesel engines--Repairing) (MIRA 9:3)

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R001755020010-0"

TARTAKOVSKIY, I.B.

Effect of the rotation of a piston disk on the wear of a cam. Avt.prom. no.12:18-19 D '60. (MIRA 13:12)
(Motor vehicles--Engines) (Cams)

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R001755020010-0"

TARTAKOVSKIY, I.B., inzh.

Calculating gas-distributing cam mechanisms for a specific contact pressure. Vest.mash 40 no.10:38-39 O'60. (MIRA 13:10)
(Cams)

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R001755020010-0"

VORONTSOV, Ivan Alekseyevich; YEVSIKOV, Anatoliy Vasil'yevich; POPOV, Viktor Yakovlevich; TARTAKOVSKIY, Il'ya Borisovich; YEFREMOV, V.V., doktor tekhn. nauk, prof., retsenzent; HASENTSYAN, A.A., inzh., red.; EL'KIND, V.D., tekhn. red.

[Techniques and equipment for repairing V2-300 and D6 high-speed diesel engines] Tekhnologiia remonta bystrokhodnykh dizelei tipa V2-300 i D6. Izd.2., dop. i perer. Moskva, Gos. nauchno-tekhn. izd-vo mashinostroit. lit-ry, 1961. 467 p. (MIRA 14:11)
(Diesel engines—Maintenance and repair)

POPOV, V. Ya., kand. tekh.; TARTAKOVSKIY, I. B., kand. tekhn. nauk

Means for reducing temperature errors in measurements. Vest. mashinostr. 42 no.12:47-50 D '62. (MIRA 16:1)

(Mensuration)

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R001755020010-0"

TARTAKOVSKIY, I.B., kand. tekhn. nauk

Statistical investigation of the wearing process of machine parts. Vest. mashinostr. 44 no.6:65-70 Je '64. (MIRA 17:8)

L 40828-66 EWT(d)/EWT(m)/EWP(w)/EWA ... /EWP(t)/EWP(k)/ETI/EWP(l) IJP(c)

ACC NR: AP6019187 JD/DJ (A,N) SOURCE CODE: UR/0122/66/000/002/0003/0008

AUTHOR: Tartakovskiy, I. B. (Candidate of technical sciences)

ORG: None

TITLE: Wear of machine components as a random quantity

SOURCE: Vestnik mashinostroyeniya, no. 2, 1966, 3-8

TOPIC TAGS: random process, reliability engineering, statistic analysis, engine component, DURABILITY

ABSTRACT: The following empirical equation is proposed for component wear as a function of time under normal operating conditions:

$$t = A \ln \frac{h+\delta}{h+\delta_0}$$

where t is the operating period for the component in hours, kilometers or other units, A is the durability factor expressed in the same units, h is the displacement of the wear curve from the nominal line with a reverse sign, and δ and δ_0 are the current and initial deviations of the dimensions of the component from nominal. Normal wear conditions are described by this equation when the coefficient A has a positive value (figure 1), while a negative value for this coefficient corresponds to break-in conditions (figure 2). Curves are given as well as modifications of the basic equation

UDC: 621.81.004.62:519.27

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R001755020010-0"

L 40828-66
ACC NR: AP6019187

describing the variations in the distribution of deviations in the dimensions of the component after operation for a given time under four sets of conditions: 1. wear during the break-in period where a change in clearance between components has no effect on the rate of wear; 2. wear during the break-in period where there is an optimum clearance corresponding to minimum wear; 3. wear under normal operation with an extermely brief break-in period; 4. wear in the case where there is a transition from the second type of break-in period to normal wear, so that one part of the initial distribution lies below the asymptote of the curve for normal wear, while the other part lies above this limit. Necessary conditions for reliable statistical results are discussed. A method is proposed for statistical analysis of measurements. Examples are given showing application of the proposed equations and method of analysis to aircraft and tractor engines. Orig. art. has: 6 figures, 20 formulas.

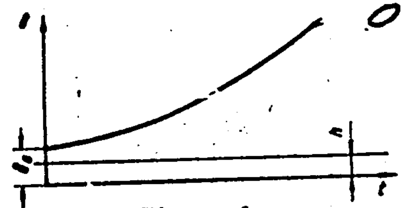

Figure 1

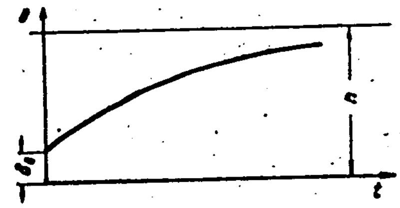

Figure 2

SUB CODE: 14/ SUBM DATE: none/ ORIG REF: 002/ OTH REF: 000

Card 2/2 MLP

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R001755020010-0"

TAR...., ...

Profiling cams by evolute curves. Teor. mash. i mekh. no.107/108: 70-78 '65. (MIRA 18:7)

TARTAKOVSKIY, I.I. (Sumy)

Optimum approximation by means of piecewise continuous functions and some problems of the approximate synthesis of mechanisms. Izv.AN SSSR.Mekh. i mashinostr. no.5:196-198 S-O '63. (MIRA 16:12)

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R001755020010-0"

OKOROKOV, I.F., kand. tekhn. nauk; PERSTNEV, S.N., inzh.;
TARTAKOVSKIY, I.I., inzh.

Investigating a drum-type picker. Trakt. i sel'khozmash.
33 no.10:28-29 O '63. (MIRA 17:1)

1. Ukrainskiy nauchno-issledovatel'skiy institut sel'sko-
khozyaystvennogo mashinostroyeniya.

TARTAKOVSKIY, I.I.

Profiling disk cams by circumferential arcs. Teor. mash. i mekh. no.1C1/102:5-19 '64. (MIRA 17:11)

Thursday, September 26, 2002 CIA-RDP86-00513R001755020010-0"

TARTAKOVSKIY, I.K.

Kinematics of a three dimensional joint coupling. Stan. i instru. 36 no.1:33-34 Ja '65. (MIRA 18:4)

TARTAKOVSKIY, I.K.

ACCESSION NR: AP4036805 S/0286/64/000/009/0011/0011

AUTHOR: Potapov, I. N.; Polukhin, P. I.; Osadchiy, V. Ya.; Finagin, P. M.; Mogilevkin, F. D.; Golubchik, R. M.; Tartakovskiy, I. K.

TITLE: A method for rolling seamless thin-walled pipes. Class 7, No. 162089

SOURCE: Byul. izobr. i tovar. znakov, no. 9, 1964, 11

TOPIC TAGS: pipe rolling, seamless pipe, thin-walled pipe, rolling mill, pipe rolling mill, metal rolling

ABSTRACT: This author's certificate introduces a method for rolling seamless thin-walled pipes by the intensive rolling (burnishing) method. In order to increase the mill productivity and reduce the thickness of the pipe walls (for example a wall thickness of 1.5 mm and more at a dimater to wall thickness ratio of 12-30), the burnishing (intensive rolling) is carried out on a conical mandrel in a rolling mill with three rollers. The working rollers of the mill are made in the form of two cones.

ASSOCIATION: none SUBMITTED: 16 JAN 63

Card 1/2

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R001755020010-0"

TARTAKOVSKIY, I.K., inzh.

Some problems in the kinematics of the three-dimensional double universal joint. Vest. mashinostr. 45 no.5:25-28 My '65. (MIRA 18:6)

ACC NR: AP6029011 SOURCE CODE: UR/0413/66/000/014/0009/0009

INVENTOR: Vyalov, N. N.; Finagin, P. M.; Sorokin, A. N.; Tartakovskiy, I. K.; Belyakov, L. S.

ORG: None

TITLE: Pipe rolling mill. Class 7, No. 183693 [announced by the Elektrostal' Heavy Machine Building Plant (Elektrostal'skiy zavod tyazhelogo mashinostroyeniya)]

SOURCE: Izobret prom obraz tov zn, no. 14, 1966, 9

TOPIC TAGS: pipe, rolling mill

ABSTRACT: This Author's Certificate introduces: 1. A pipe rolling mill consisting of a housing with drive and input and output equipment. The housing is equipped with pilger mill roller and automatic mill roller assemblies. 2. A modification of this device for producing tubes by the pilger method. The unit has a feed mechanism, a mechanism for controlling mandrel cooling and transfer, and a lifting trough on the input side. The output side of the mill is equipped with a lift table. 3. A modification of this unit for automatic pipe rolling using master rollers on the input side of the mill to replace the hoisting trough. The unit also has a fixed trough, while a single assembly consisting of wiring, crosspiece and brake-centering unit is mounted on the output side of the mill.

SUB CODE: 13/ SUBM DATE: 10Jan64

Card 1/1 UDC: 621.771.28

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R001755020010-0"

TARTAKOVSKIY, I.P., kand. tekhn. nauk

Vibratory finishing of instrument parts in dies. Avtom. i prib. no.2:
71-74 Ap-Je '65. (MIRA 18:7)

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R001755020010-0"

L 18873-66 EWP(k)/EWT(m)/EWP(e)/EWP(t) JD

ACC NR: AP5022544 SOURCE CODE: UR/0226/65/000/009/0040/0044

AUTHOR: Ivashchenko, V. V.; Tartakovskiy, I. P.; Golubev, T. M.

ORG: Kiev Polytechnic Institute (Kiyevskiy politekhnicheskiy institut) 24 B

TITLE: Investigation of vibration packing of two-component systems of spherical powders 16,44,55

SOURCE: Poroshkovaya metallurgiya, no. 9, 1965, 40-44

TOPIC TAGS: spheric metal powder, vibration analysis, vibration effect, specific density, packing

ABSTRACT: The vibration packing of a two-component system of spherical powders has been investigated. Experimental data on the effect of the frequency and amplitude of vibration on the rate of packing and the attained density are presented. The optimal operating conditions are determined. It is also shown that the maximum density of the two-component system depends both on the ratio of the quantities of fractions employed and on the ratio of the dimensions of their particles. Orig. art. has: 4 figures and 1 table. [Based on authors' abstract.] [NT]

SUB CODE: 11/3/ SUBM DATE: 20Jan65/ ORIG REF: 002/ OTH REF: 001

Card 1/1 *10*

IVASHCHENKO, V.V.; TARTAKOVSKIY, I.P.; GOLUBEV, T.M.

Investigating the vibrational compaction of two-component spherical powder systems. Porosh. met. 5 no.9:40-44 S '65.
(MIRA 18:9)

1. Kiyevskiy politekhnicheskiy institut.

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R001755020010-0"

L 08783-67 EWP(e)/EWT(m)/EWP(t)/ETI/EWP(k) IJP(c) JD

ACC NR: AT6025833 SOURCE CODE: UR/3206/66/000/001/0091/0096

AUTHORS: Tartakovskiy, I. P. (Candidate of technical sciences); Ivashchenko, V. V. (Engineer)

ORG: none

TITLE: A study of the vibrational consolidation of hard alloys powders

SOURCE: Ukraine. Ministerstvo vysshego i srednego spetsial'nogo obrazovaniya. Tekhnologiya mashinostroyeniya (Technology of machinery manufacture) no. 1, Kiev, Izd-vo Tekhnika, 1966, 91-96

TOPIC TAGS: alloy, powder alloy, powder metal, powder metal compaction, powder metallurgy, vibration effect / VK-6 alloy, VK-20 alloy

ABSTRACT: The results of investigating means of vibrational consolidation of powders of hard alloys VK-6 and VK-20 are presented. The studies were conducted at the Kiev Polytechnical Institute (Kiyevskiy politekhnicheskiy institut) in the department of "Machines and the Technology of Metal Processing by Pressure." The experiments were conducted on test apparatus of the type recommended by I. P. Tartakovskiy. This type of test equipment allows the independent determination of the necessary parameters of vibration: amplitude, vibration frequency, and amount of static load. A schematic

Card 1/2

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R001755020010-0

L 08783-67

ACC NR: AT6025833

diagram of the test device is shown. Test measurements are plotted to portray the variation of powder briquet density as a function of vibrational frequency and amplitude, and as a function of static pressure. The studies showed that for alloys VK-6 and VK-20 higher densities are obtained with greater vibrational amplitudes. In the experimental conditions for this series of tests frequency was not found to have an appreciable effect on the consolidation process. There is an upper limit of amplitude; above this limit value the briquets may be destroyed. Vibrational consolidation increases with higher static pressures, however, the intensity (rate) of densification decreases with increasing static pressure. The results show that it may be feasible to use electromagnetic vibrators for industrial production of the alloys tested. Orig. art. has: 5 figures.

SUB CODE: 11/ SUBM DATE: none/ ORIG REF: 004/ OTH REF: 001

Card 2/2 nst

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R001755020010-0"

L 01602-66 EWP(e)/EWT(m)/EWP(t)/EWP(k)/EWP(z)/EWP(b) IJP(c) JD

ACCESSION NR: AP5020768 UR/0226/65/000/008/0035/0039

AUTHOR: Ivashchenko, V. V.; Tartakovskiy, I. P.; Golubev, T. M.

TITLE: Investigation of the densification of spherical powders by vibration

SOURCE: Poroshkovaya metallurgiya, no. 8, 1965, 35-39

TOPIC TAGS: metal powder, spherical metal powder, powder densification, vibration densification, compacted powder density

ABSTRACT: The effect of vibration on the rate and degree of densification of loose spherical powders has been investigated. Two fractions of spherical copper powders with a particle size of -0.5 + 0.4 or -0.16 + 0.1 mm, loosely poured into a vertical container, were subjected to axial vibrations for up to 180 sec at a frequency of up to 150 cps and an amplitude of up to 40 μ. The maximum rate of densification of either fraction was observed in the first 5—10 sec; it then decreased with time and no further densification occurred after 180 sec. The densification rate in the initial period was higher at higher vibration frequencies. The highest density in the

L 01802-66

ACCESSION NR: AP5020768

-0.16 + 0.1 mm fraction, 5.26 g/cm² (the initial loose-powder density was 4.6—4.7 g/cm²), was obtained with vibrations at a frequency of 100 cps and an amplitude of 5 μ. Each investigated powder fraction attains the most intense compaction in its own specific band of optimal amplitudes and frequencies. At a constant vibration amplitude, both the densification rate and the density increase with increasing frequency and reach a maximum at optimal amplitudes whose magnitude decreases with increasing frequency. For the -0.16 + 0.1 mm fraction at a vibration frequency of 50 cps, the optimum amplitude range was 10—30 μ. Vibrations at higher than optimum amplitudes led to loosening. Under identical vibration parameters the density of coarse powder was higher than that of fine powder. Also, in the range of optimal amplitudes the time required to obtain a given density decreased with increasing (within definite limits) frequency. The general conclusion is that densification by vibration offers definite advantages in making filters and other porous parts from spherical powders. Orig. art. has: 6 figures. [MS]

ASSOCIATION: Kiyevskiy politekhnicheskiy institut (Kiev Polytechnic Institute) 44,55

Card 2/3

L 01802-66

ACCESSION NR: AP5020768

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SUBMITTED: 23Nov64 ENCL: 00 SUB CODE: MM, AS

NO REF SOV: 005 OTHER: 001 ATD PRESS: 4085

Card 3/3

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R001755020010-0"

L 4456-66 EWP(e)/EWT(m)/EWP(t)/EWP(k)/EWP(a)/EWP(z)/EWA(b) JD

ACC NR: AP5023349 SOURCE CODE: UR/0304/65/000/005/0079/0080

AUTHOR: Ivashchenko, V. V. (Engineer); Tartakovskiy, I. P. (Candidate of technical sciences); Golubev, T. M. (Doctor of technical sciences)

ORG: none

TITLE: Intensification of the vibratory densification of spherical powders

SOURCE: Mashinostroyeniye, no. 5, 1965, 79-80

TOPIC TAGS: metal powder, spheric metal powder, powder densification, vibratory densification, static pressure effect

ABSTRACT: The vibratory densification of spherical powders can be intensified by superimposing a static pressure of 0.07—0.5 kg/cm^2 on the vibrating powder. In experiments with spherical metal-powder fractions (-05 +04) and (-016 +01), the most effective densification was achieved at a vibration frequency of 100 cps and an additional static pressure of 0.22 and 0.07—0.22 kg/cm^2, respectively. Increasing the vibration amplitude within 10—40μ had practically no effect on the degree and rate of densification. The vibratory densification is most effective when the additional pressure is applied after 20—30 sec of free vibratory densification. In vibratory densification under static pressure, the clearance between the die sides and the punch should be smaller than the size of the smallest powder particle. The usual vibration densification time is 140—180 sec. The experiments were conducted at the Refractory

UDC: 621.762

Card 1/2

L 4456-66

ACC NR: AP5023349

3

Metal Section of the Institute of the Problems of the Science of Materials, Ukrainian Academy of Sciences. Orig. art. has: 2 figures. 44,55 [MS]

SUB CODE: MM, IE/ SUBM DATE: none/ ORIG REF: 000/ OTH REF: 000/ ATD PRESS: 4126

BVK

Card 2/2

L 7805-66 EWT(d)/FSS-2/EWT(1)/EWT(m)/EPF(c)/EWA(h) IJP(c) JD

ACC NR: AP5022962 SOURCE CODE: UR/0256/65/000/006/0056/0059

AUTHOR: Tartakovskiy, I. P. (Engineer, Colonel); Likhodey, V. G. (Engineer, Captain)

ORG: None

TITLE: Upkeep of cable equipment

SOURCE: Vestnik protivovozdushnoy oborony, no. 6, 1965, 56-59

TOPIC TAGS: antiaircraft defense, antiaircraft missile, missile auxiliary equipment, connecting cable

ABSTRACT: After stressing the extreme importance of the cable equipment of the anti-aircraft rocket complex, the authors analyze various possible and known sources of trouble. They give recommendations (1) for measures reducing the water absorption in the front subsections of the cables; (2) for general protection against high humidity; (3) for measures reducing ozone-induced deterioration (especially vulnerable in this respect is the GTSh high voltage cable); and (4) for the protection of cables from solar radiations. The article contains specific instructions concerning the organization of work for the construction of cable carrying ducts, the engineering specifications of the cable network, a discussion concerning the possible use of auxiliary excavation equipment, and reminders to put warning signs along the paths of the cables.

SUB CODE: GM, MS / SUBM DATE: none

Card 1/1

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R001755020010-0"

LOPATA, Aleksandr Yakovlevich; TARTAKOVSKIY, Iosif Petrovich; BONDAROVSKIY, F.P., dotsent, kand.tekhn.nauk, retsenzent; MAYEVSKIY, V.V., inzh., red.

[Key and toothed (splined) joints] Shponochnye i zubchatye (shlitsevye) soedineniia. Moskva, Gos.nauchno-tekhn.izd-vo mashinostroit.lit-ry, 1960. 129 p. (MIRA 13:5)
(Couplings)

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R001755020010-0"

FEL'DMAN, Il'ya Iosifovich, dotsent, kand.tekhn.nauk; TABACHNIKOV, Izrail' Zos'yevich, inzh.; DYMSHITS, Mikhail Abramovich, inzh.; TARTAKOVSKIY, I.P., dotsent, kand.tekhn.nauk, retsenzent; SUR, M.D., inzh., red.; SOROKA, M.S., red.

[Modernization of forging and pressing equipment] Modernizatsiia kuznechno-pressovogo oborudovaniia. Moskva, Gos.nauchno-tekhn.izd-vo mashinostroit.lit-ry, 1960. 375 p. (MIRA 13:9)

(Forging machinery--Technological innovations)

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R001755020010-0"

TARTAKOVSKIY, I.P.

PHASE I BOOK EXPLOITATION SOV/5580

Golubev, T.M., Doctor of Technical Sciences, Professor, and I.P. Tartakovskiy, Candidate of Technical Sciences, Docent, eds.

Avtomatizatsiya kholodnoshtampovochnogo proizvodstva (Automation of Cold [Metal] Stamping Production) Moscow, Mashgiz, 1961. 282 p. 6,000 copies printed.

Sponsoring Agency: Gosudarstvennyy nauchno-tekhnicheskiy komitet Soveta Ministrov UkrSSR Institut tekhnicheskoy informatsii. Nauchno-tekhnicheskoye obshchestvo mashinostroitel'noy promyshlennosti. Kiyevskoye oblastnoye pravleniye. Nauchno-tekhnicheskoye obshchestvo priborostroitel'noy promyshlennosti. Ukrainskoye respublikanskoye pravleniye.

Ed.: M.S. Soroka; Tech. Ed.: M.S. Gornostaypol'skaya; Chief Ed.: (Southern Dept. Mashgiz): V.K. Serdyuk, Engineer.

PURPOSE: This collection of articles is intended for workers at machine and instrument plants and scientific research and design institutes.

Card 1/5

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R001755020010-0"

Automation of Cold [Metal] Stamping Production SOV/5580

COVERAGE: The collection contains reports delivered at the Kiyev Scientific and Technical Conference by workers of machine and instrument plants, design organizations, and scientific research and educational institutes. The Conference was sponsored by the Kiyevskoye oblastnoye pravleniye Nauchno-tekhnicheskogo obshchestva mashinostroitel'noy promyshlennosti (Kiyev Oblast Administration of the Scientific and Technical Society of the Machine-Building Industry) and by the Ukrainskoye respublikanskoye pravleniye Nauchno-tekhnicheskogo obshchestva priborostroitel'noy promyshlennosti (Ukrainian Republican Administration of the Scientific and Technical Society of the Instrument-Making Industry). The purpose of the Conference was to discuss the achievements and practical experience (especially at the Gor'kiy Automobile Plant, the VEF Plant, and Leningrad factories) in the automation of stamping production. The Conference also served to acquaint a wide number of machine and instrument builders with the present state of automation in these fields and with the prospects for its further development. Papers dealing with experience in the design and operation of automatic devices, presses, and automatic production lines used in stamping production were discussed. No personalities are mentioned. References accompany most of the articles.

TABLE OF CONTENTS:

Foreword 3

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R001755020010-0"

Burshteyn, D. Ye. Automation of Stamping in Press Shops (From the Practice at GAZ (Gor'kiy Automobile Plant)) 5

Romanovskiy, V.P. Automation of Stamping Processes at Leningrad Plants 27

Lapin, P.M. Mechanization and Automation of Stamping Operations (From Factory Practice) 40

Koshkin, L.N. Automatic Rotary Transfer-Machine Lines 48

Kravchenko, D.G. Automation of Stamping Presses (From the Practice of the Barnaul'skiy zavod mekhanicheskikh pressov (Barnaul Mechanical Presses Plant) 71

Demidenko, Ye. I. Investigating the Operation of Automatic Stamping Production Lines for Relay Springs 85

Zlotnikov, S.L. Some Problems of Automation in Stamping Production 98

Shofman, L.A. The Present State of Stamping Production and Anticipated Problems 101

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R001755020010-0"

Preys, V.F. Use of Rotary Feeds as One Method of Expanding the Manufacturing Versatility of Mechanical Presses and Increasing Their Productivity 105

Filippov, V.V. Engineering and Economic Indexes of the Use of Standard Means of Mechanizing and Automating Manual Operations in Stamping 126

Medvid', M.V. Automation of Bushing Production for Roller Chains 139

Povidaylo, V.A. Designing and Constructing Vibratory Hopper Loaders 150

Preys, V.F. Engineering Methods of Designing Mechanical Automatic Locating Hopper Loaders 162

Trofimov, I.D. On Ways of Increasing the Productivity and Expanding the Manufacturing Versatility of Automatic Cold Upsetting Machines 179

Deordiyev, N.T. Increasing the Operational Efficiency of Existing Automatic Production Lines for Bolts and Nuts 191

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R001755020010-0"

Miropol'skiy, Yu. A. Classification and Selection of the Arrangement of Cam Mechanisms for Automatic Die-Forming Machines 206

Orlikov, M.L., and Ye. Ya. Antonovskiy. Some Problems in the Methods of Designing Cam Mechanisms 229

Belozerov, Yu. A. Mechanization and Automation of Stamping Operations in Instrument Making 237

Gutnik, M.A. Automation of Stamping Operations 244

Zhagiro, V.I. A Modern Automatic Press 259

Tartakovskiy, I.P. Determination of the Basic Parameters of Vibratory Presses for Trimming Operations 264

Podrabinnik, I.M. Automatic Machine for Fabricating Wire Products 272

AVAILABLE: Library of Congress

Card 5/5

VK/wrc/mas
9-13-61

L 24866-66 EWT(d)/EWP(v)/EWP(k)/EWP(h)/EWP(1)

ACC NR: AP6006408 (A) SOURCE CODE: UR/0413/66/000/002/0148/0149

AUTHOR: Tartakovskiy, I. P.

ORG: none

TITLE: Vibration press. Class 58, No. 178268

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 2, 1966, 148-149

TOPIC TAGS: automatic pressure control, metal press, nonmetal press

ABSTRACT: This Author Certificate presents a vibration press equipped with a table to which the vibration transducing instrument is fastened. To obtain the required number of vibration per 1-mm working stroke of the slide bar and a given vibration amplitude, the connection to the vibration transducer table is designed in the shape of a crankshaft and crank-ratchet mechanism. The latter are connected to each other by means of an eccentric washer which is adjusted by a variable eccentric, insuring the required amplitude of vibration. To enable the press to work with a nonvibrating table, the latter is equipped with a fixed

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Card 1/2

L 24866-66
ACC NR: AP6006408

connector to the support, fastened to the press mount (see Fig. 1).

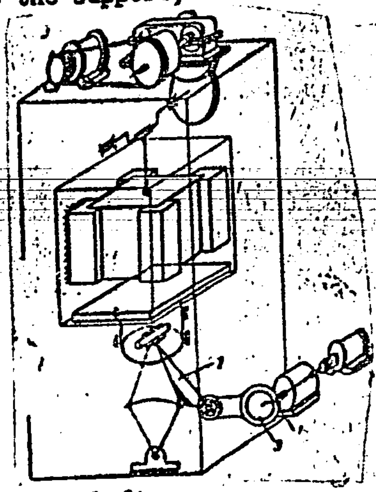

Fig. 1. 1 - crankshaft; 2 - crank-ratchet mechanism; 3 - eccentric washer.

Orig. art. has: 1 figure.

SUB CODE: 14/3 / SUBM DATE: 19Nov63

Card 2/2

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R001755020010-0"

TARTAKOVSKIY418S8 600

1. TARTAKOVSKIY, I. S.

2. USSR (600)

"Research on the Solvation of Electrolytes in Anhydrous Solutions," Zhur. Fiz. Khim, 13, No. 9, 1939.
Dnepropetrovsk, State University, Laboratory of Physical Chemistry. Received 28 November 1938.

9. [redacted] Report U-1615, 3 Jan. 1952.

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R001755020010-0"

TARTAKOVSKIY, K. G.

Primenenie paketa plastin v kachestve amortizatora. (Vestn. Mash., 1950, no. 11, p. 16)

Refers to Novo-Kramatorskii Stalin machine-building plant.

Use of plate piles as shock absorbers (In rolling mill arresting devices.)

DLC: TN4V4

SO: Manufacturing and Mechanical Engineering in the Soviet Union, Library of Congress, 1953.

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R001755020010-0"

Category : USSR/Radiophysics - Radiation of radio waves. Antennas I-5

Abs Jour : Ref Zhur - Fizika, No 1, 1957, No 1856

Author : Tartakovskiy, L.B., Pokras, A.M.
Title : On the Theory of a Periscopic Antenna System

Orig Pub : Radiotekhn. i elektronika, 1956, 1, No 2, 186-196

Abstract : The efficiency of periscopic antennas was studied for the case of unequal diameters and for short distances between the mirrors of the radiator and of the re-radiator, when the wave reflected from the re-radiator (flat mirror) is not plane. The calculations were made for the axially-symmetrical problem in the Kirchhoff scalar approximation, using the aperture method. The radiator and re-radiator are replaced in the calculation by round apertures, as is customarily done (Ref. Zhur. Fiz. 1954, 1890). The wave in the aperture corresponding to the radiator is assumed to be plane with an axially-symmetrical drop-off in the amplitude toward the edge of the aperture, using the law $1 - \chi (r/\underline{1})^2$, where r is the running radius and 1 the radius of the aperture. The expression for the field at infinity is written in terms of a Lommel function (in the form of series of Bessel functions). The phase of the integrand of the approximation is approximated by a quadratic expression, the coefficients of which are not the Taylor-series coefficients, as in earlier calculations, but which are selected to obtain a best mean-square approximation in the interval $(0,\underline{1})$. The variable parameters in the numerical

Card : 1/2

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Category : USSR/Radiophysics - Radiation of radio waves. Antennas

Abs Jour : Ref Zhur - Fizika, No 1, 1957, No 1856

calculations are the ratios of the diameters of the radiator and re-radiator; the coefficient characterizing the decrease in the amplitude, and the dimensionless parameter $m = 2\pi\beta a^2/\lambda d$, where a is the radius of the re-radiator aperture and β the coefficient in front of the quadratic term in the expression for the phase of the integrand. The maximum efficiency of a periscopic system, calculated as the ratio of the square of the field intensity of the entire system to the square of the field intensity of the radiator is obtained when $\underline{1} < 1$, i.e., when the mirror of the re-radiator is greater than the mirror of the radiator; this ratio, other conditions being equal, is greater for diminishing distributions at small values of m (large distances d). It is noted that the introduction of an other than Taylor expansion for the phase of the integrand ($\beta \neq 1$) affects little the value of the efficiency, but makes it possible to use the equation for much larger values of a/d, i.e., for cases when the distance between the radiator and the re-radiator is merely 2-3 times greater than the diameter of the mirrors.

Card : 2/2

September 26, 2002 CIA-RDP86-00513R001755020010-0"

TARTAKOVSKIY, L.B.

109-3-5-2/17

AUTHORS: Potekhin, A.I. and Tartakovskiy, L.B.

TITLE: Radiation of the Hertz Dipole Situated at the Edge of an Ideally-conducting Wedge (Izlucheniye dipolya gertsa na kromke ideal'no provodyashchego klina)

PERIODICAL: Radiotekhnika i Elektronika, 1958, Vol III, Nr 5, pp 592 - 602 (USSR)

ABSTRACT: It was shown earlier (Ref.1) that the electrodynamic field of a system can be expressed by means of Eqs.(3), in which the function f should satisfy an electrostatic differential equation expressed by Formula (2). This method is applied to the evaluation of the field produced by a wedge formed of two ideally-conducting semi-planes (see Fig.1). The larger angle between the planes is δ and it is assumed that the axis z coincides with the edge of the system. If an electrostatic charge q is situated at a point M_o, having cylindrical co-ordinates $z_o = 0$, $R_o = l$ and $\varphi_o = \delta/2$ the electrostatic field potential can be expressed by Eq.(4), where $\beta = \pi/\delta$. For small l, the integral of Eq.(4) can be written as Eq.(5). If the product ql^{β} is maintained constant and equal to p_o when $l \to 0$, the potential can be expressed

Card1/5

Radiation of the Hertz Dipole Situated at the Edge of an Ideally-conducting Wedge

by Eq.(7). If the cylindrical co-ordinates are changed into spherical co-ordinates, Equ.(7) can be expressed as Eq.(8), so that the function f is given by Eq.(9). In the solution of the dynamic problem, it is assumed that the Hertz dipole has a moment as expressed by Eq.(12), in which I_0 is the current amplitude and l is the length of the dipole. The amplitude of the field components $E_\varphi(k)$ of Eqs.(3) is given by Eq.(10) or, in terms of the dynamic moment, it can be expressed by Eq.(13). If expressions given by Eqs.(9) and (13) are substituted into Eqs.(3), the electric field components are given by:

Radiation of the Hertz Dipole Situated at the Edge of an Ideally-conducting Wedge

$$E_r = \frac{120(1+\beta)k^\beta}{\Gamma(\beta)2^\beta} \frac{M^{ДИН}}{r} h_\beta^{(1)}(kr) \sin^\beta\theta \sin\beta\varphi e^{-i\omega t}$$

$$E_\vartheta = \frac{120k^\beta}{\Gamma(\beta)2^\beta} \frac{M^{ДИН}}{r} \frac{d}{dr}\left[rh_\beta^{(1)}(kr)\right] \frac{\cos\theta \sin\beta\varphi}{\sin^{1-\beta}\theta} e^{-i\omega t} \quad (14)$$

$$E_\varphi = \frac{120k^\beta}{\Gamma(\beta)2^\beta} \frac{M^{ДИН}}{r} \frac{d}{dr}\left[rh_\beta^{(1)}(kr)\right] \frac{\cos\beta\varphi}{\sin^{1-\beta}\theta} e^{-i\omega t}$$

where $k = 120\pi\omega\varepsilon_0$. The magnetic field components are expressed by Eqs.(15). For $\delta = 2\pi$, the wedge degenerates into a semi-plane. Eqs.(14) and (15) were employed to analyse this case graphically and the results are shown in

Radiation of the Hertz Dipole Situated at the Edge of an Ideally-conducting Wedge

Figs. 2 and 3. The semi-circles of Fig. 2 represent the curves of constant phase for various values of φ, while the thick line curves represent the constant current amplitude distribution. Similar curves are shown in Fig.3, but these are plotted for small values of kx. The results for a right-angle wedge ($\beta = 2/3$) are shown in Figs. 4 and 5. The phase and current lines for a wedge having $\delta = \pi/2$ are given in Fig.6, while the vertical radiation patterns for various values of σ are shown in Fig.7. The power radiated by the dipole can be determined from Eq.(26). It is shown that the solution of this equation is given by:

$$P_{\Sigma} = 15 I_0^2 \frac{(\beta + 1)(kl)^{2\beta}}{\beta(\beta + 1/2)\Gamma(2\beta)} \qquad (28).$$

From the above, it is found that the radiation resistance of the system is expressed by Eq.(29). Fig. 8 shows the radiation resistance in ohms as a function of δ for two values of l.

109-3-5-2/17

Radiation of the Hertz Dipole Situated at the Edge of an Ideally-conducting Wedge

There are 8 figures and 2 Soviet references

SUBMITTED: May 14, 1957

AVAILABLE: Library of Congress

Card 5/5

1. Dipoles-Radiation-Mathematical analysis

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R001755020010-0"

SOV/109-3-12-5/13

AUTHOR: Tartakovskiy, L.B.

TITLE: The Synthesis of a Linear Radiator and its Analogue in the Problem of Wide-band Matching (Sintez lineynogo izluchatelya i ego analogii v zadache shirokopolosnogo soglasovaniya)

PERIODICAL: Radiotekhnika i Elektronika, 1958, Vol 3, Nr 12, pp 1463 - 1474 (USSR)

ABSTRACT: The known theory (Refs 1-4) deals with the directivity of a linear radiator which is in the form of a set of similarly polarised monochromatic sources of the electromagnetic field; the sources are either continuously or discretely distributed over a region such that the deviations of all the points from the axis of the system are small in comparison with the wavelength (see Figure 1). The theory shows that a linear radiator is characterised by a scalar function $I(z)$ which describes the distribution of the phase and amplitude of the currents or the fields. The field of the radiator for $r \gg L$ can be described by one of the following formulae:

Card 1/5

SOV/109-3-12-5/13

The Synthesis of a Linear Radiator and its Analogue in the Problem of Wide-band Matching

$$\vec{E}_{\parallel}(M) \simeq \frac{E_o \cos\theta}{r} e^{-imr} F_a(\sin\theta)\vec{\theta}_o \quad (1)$$

$$\vec{E}_{\perp}(M) \simeq \frac{E_o\sqrt{1 - \cos^2\theta\cos^2\varphi}}{r} e^{-imr} F_a(\sin\theta)\vec{\alpha}_o \quad (2)$$

where $m = 2\pi/\lambda$, E_o is the amplitude, λ is the wavelength in free space; r, θ, φ are spherical co-ordinates of the point of observation (Figure 2); $\vec{E}_{\parallel}$ is the field of the sources which have parallel polarisation and $\vec{E}_{\perp}$ is the field of the sources which are perpendicularly polarised with respect to axis OZ; $\vec{\theta}_o$ and $\vec{\alpha}_o$ are unit vectors (Figure 2). Eqs (1) and (2) contain an analytical function:

Card 2/5

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R001755020010-0"

The Synthesis of a Linear Radiator and its Analogue in the Problem of Wide-band Matching

$$F_a(u) = \int_{-a}^{+a} j(t)e^{iut}dt \qquad (3)$$

where $u = \sin\theta$, $a = \pi\frac{L}{\lambda}$, L is the lengths of the radiator, $j(t)$ is a normalised function obtained by changing the argument of $I(z)$ by using Eq (4). It is interesting to note that the reflection coefficient of a non-uniform transmission line (a feeder) can also be expressed by a similar analytical function; this is given by:

$$\Gamma_A(\alpha) = e^{-iA\alpha}\int_{0}^{A} n(t)e^{i\alpha t}dt \qquad (5)$$

where $t = 4\pi\frac{x}{\lambda_o}$, $A = 4\pi\frac{L}{\lambda}$, x is a linear co-ordinate, L is the length of the non-uniform section of the line (Figure 3); λ_o is the wavelength in the line at a

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R001755020010-0"

frequency f_o. From the above, it is seen that the problem of a linear radiator and that of a non-uniform line are analogous. The problem of a linear radiator is dealt with in some detail. It is shown that the so-called super-directive distribution of sources can be derived, but this cannot be realised in practice. The synthesis can be carried out approximately by using the so-called iterative method which permits the expansion of the given directivity function into two components: 1) a function which can be realised by sources situated within prescribed limits and 2) a function which can be realised by employing radiation sources situated along a straight line outside the radiator. It is shown that in two practically important cases, the iterative method does not require complex calculations. In the first case, the maximum of the modulus of the derivative of the complex directivity pattern, which is given by an analytical expression, does not exceed the ratio of the length of the radiator to the wavelength. In the second case, the first approximation of the method gives a very

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R001755020010-0"

The Synthesis of a Linear Radiator and its Analogue in the Problem of Wide-band Matching

inaccurate solution. This problem is analogous to the problem of wide-band matching of the loads which have a large phase component of the reflection coefficient. Here, it is shown that it is comparatively simple to estimate the maximum possible approximation and the realisability of the radiator. There are 8 figures and 19 references, 15 of which are Soviet and 4 English; 4 of the Soviet references are translated from English.

SUBMITTED: March 15, 1958

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R001755020010-0"

SOV/109-4-6-2/27

AUTHOR: Tartakovskiy, L.B.

TITLE: Side-lobe Radiation of an Ideal Paraboloid Having a Circular Aperture (Bokovoye izlucheniye ideal'nogo paraboloida s kruglym raskryvom)

PERIODICAL: Radiotekhnika i elektronika, 1959, Vol 4, Nr 6, pp 920 - 929 (USSR)

ABSTRACT: An ideally conducting, infinitely thin paraboloid of revolution is considered. A spherical system of co-ordinates, having its origin in the focus of the paraboloid is introduced. The axis OZ (Figure 1) coincides with the axis of revolution. The co-ordinates of the point of observation are denoted by R, θ and φ, while the co-ordinates of the integration point on the mirror are R', θ' and φ'. The equation of the paraboloid is given by:

$$R' = \frac{2F}{1 - \cos\theta'} \qquad (1)$$

where F is the focal distance. The normal vector and the surface element of the paraboloid can be determined

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R001755020010-0"

SOV/109-4-6-2/27

Side-lobe Radiation of an Ideal Paraboloid Having a Circular Aperture

from Eqs (2), where the index 0 denotes unit vectors. On the basis of the aperture method of analysis, the field in the mirror can be determined from Eq (4). Consequently, the directional pattern of the miror is given by Eqs (5), where $k = 2\pi/\lambda$. The current at the surface of the paraboloid is given by Eq (6). By integrating Eq (6), it is possible to find the vector-potential and its transverse components which coincide with the transverse components of the electric field in the far zone. These are given by Eqs (7). By comparing Eqs (5) and (7), it is seen that the field calculated by the second method differs from the field evaluated by the aperture method. In particular, the difference in the second method lies in the non-linearity of the phase function. The aperture method is applicable at small angles of the observation point and the condition of applicability is defined by Eq (10), where η is contained between 0 and 1 and depends on the geometry of the mirror: θ_{kp} denotes the minimum angle inside the boundaries of the mirror. When

Card2/4

Thursday, September 26, 2002 CIA-RDP86-00513R001755020010-0"

the mirror is axially symmetrical. its directional pattern can be expressed by Eq (11), where function $f(t)$ is known. Eq (7) can, therefore, be written as Eqs (12) and (13) where $a = \pi D/\lambda$ is the known parameter of the aperture method. If only the scalar directional pattern is of interest, the field can be represented by Eq (14). If the function $f(t) = (1 - t^2)^n$, the structure of the side-lobe radiation can be investigated by employing Eq (14). This leads to Eqs (16). These can approximately be represented by Eqs (17). Eqs (16) and (17) become identical for $\beta = 1$. The formulae were used to plot a number of directional patterns for a mirror having an aperture of 10λ. The results are shown in Figures 2, 3 and 4. The results obtained by the aperture method are illustrated by the 'dashed' curves, while those evaluated on the basis of the second method are represented by the solid curves. From the analysis it is concluded that the second method of calculating the directional pattern of parabolic antennae permits the evaluation of the nearest

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SOV/109-4-6-2/27

Side-lobe Radiation of an Ideal Paraboloid Having a Circular Aperture

side-lobe, as well as the level and the phase of the far and reverse lobes. Further, by introducing suitable diffraction corrections, this method can be employed to reduce the calculation errors.
There are 5 figures, 2 tables and 9 references, 1 of which is English and 8 Soviet; one of the Soviet references is translated from English.

SUBMITTED: March 26, 1958

Card 4/4

80582

S/109/60/005/06/005/021
E140/E163

9.1200

AUTHORS: Tartakovskiy, L.B., and Tandit, V.L.

TITLE: Current Distribution on the Reflector of a Reflector Antenna

PERIODICAL: Radiotekhnika i elektronika, 1960, Vol 5, Nr 6, pp 918-925 (USSR)

ABSTRACT: The purpose of the present article is to study the error of the current method of calculating reflector antennae and to estimate the possibilities of making it more exact. The current on the reflector surface is assumed to be a function of the coordinates of the reflector point projections of the focal plane. The approximation adopted in the current method involves three errors: the field established by the exciter is substituted by its asymptotic representation neglecting the near field of the exciter; interaction of the currents in different parts of the surface is neglected; the interaction of currents flowing over the shadow side of the surface and the perturbation currents of the reflector edge on the illuminated side are neglected. These approximations are usually justified by the large value of the parameter

Card 1/2

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80582

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E140/E163

Current Distribution on the Reflector of a Reflector Antenna

F/λ. The effect of the exciter near field is first studied. Its effect increases with increase of dimensions or exciter directivity. The effect of reflector curvature is then analysed by a method of successive approximations. It is found that this effect is negligible in comparison with the contribution of the exciter near field. Its effect reduces to the appearance of a constant phase shift in the current distribution. The edge effect is then analysed. With zero excitation of the reflector contour it is necessary to take into account the currents induced on the reflector contour by the excited near field. The exciter near field is directly expressed through its directional pattern but has a different distribution at the reflector. The ratio of current induced by this field to that established by the radiation field of the exciter is equal in order of magnitude to the ratio of exciter and reflector diameters. The effective zone of action of the edge effect is of the order of a tenth wavelength.

There are 5 Soviet references.

Card 2/2

SUBMITTED: August 26, 1959

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R001755020010-0"

83260

S/109/60/005/009/005/026
E140/E455

9.1800

AUTHORS: Tandit, V.L. and Tartakovskiy, L.B.

TITLE: Radiation of a Reflector Antenna in the Shadow Zone 25B

PERIODICAL: Radiotekhnika i elektronika, 1960, Vol.5, No.9, pp.1398-1406

TEXT: The article is based on the current method of calculating reflector antenna radiations. The reflector is assumed to be ideally conducting and infinitely thin, with a low-directivity radiator. The radiator dimensions are assumed comparable with the wavelength and small in comparison with the reflector dimensions. The analysis takes into account diffraction correction for the radiator near field, curvature of the reflector and edge effect, discussed in Ref.3. The radiation of the reflector antenna in the shadow zone is determined by the screening effect of the finite metal reflector and depends little on the directivity of the antenna. It is defined 1) by the field of the radiator and the character of the radiating points on the reflector boundary; 2) by the distance from the stationary point of the reflector to the radiating point on the boundary and 3) by the presence of the edge effect at the sharp edge of the

Card 1/2

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R001755020010-0"

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E140/E455

Radiation of a Reflector Antenna in the Shadow Zone

reflector. When the reflector boundary is intensely irradiated, the shadow zone field, calculated without considering diffraction current, can be made more exact by taking into account the edge effect. Regardless of the distribution of radiation from the primary radiator, at the reflector the back radiation can be changed only by several decibels in one direction or the other. The shape of the reflector boundary has an effect independent of the distribution of radiation at the reflector. The variation of the phase along the boundary can only decrease the observed field in the shadow zone by not more than half an order of magnitude. If the primary field at the reflector boundary is decreased to zero, it will only decrease the field in the shadow zone by an order of magnitude, and the near field of the primary radiator becomes decisive. This prevents further reduction of the shadow field by establishment of a zero of radiation from the primary radiator in the direction of the reflector boundary. There are 4 figures and 7 references: 6 Soviet and 1 English.

SUBMITTED: January 7, 1960

Card 2/2

TARTAKOVSKIY, L. S.

Mbr., Lab. Physical Chemistry, Dnepropetrovsk, State Univ., -1941-. "Measurements of the Refractive Indices and the Densities of Alcohol-Water Electrolytic Solutions," Acta Phys., 14, No. 2, 1941.

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R001755020010-0"

AUTHOR: Tartakovskiy, L.S. SOV/106-58-7-3/18

TITLE: An Analysis of the Propagation of Radio Waves Over an Electromagnetic Earth by the Method of Geometric Optics (Analiz rasprostraneniya radiovoln nad elektromagnitnoy pochvoy metodom geometricheskoy optiki)

PERIODICAL: Elektrosvyaz', 1958, Nr 7, pp 11 - 18 (USSR)

ABSTRACT: By an 'electromagnetic earth' is meant one in which both the permeability and permittivity are other than unity. It is shown that, other conditions being equal, for an increase in permeability the field from a source of normally-polarised waves is increased while the field from a source of tangentially-polarised waves is reduced. Ferrite is cited as a suitable electromagnetic material and it is suggested that it could be usefully employed in waveguide systems. Dipole sources are assumed and the results are presented in a series of graphs. Figure 1 is a plot of reflection coefficient while Figures 2 and 3 are, in effect, polar diagrams. Figures 4, 5 and 6 show how

Card 1/2

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R001755020010-0"

SOV/106-58-7-3/18

An Analysis of the Propagation of Radio Waves Over an Electromagnetic Earth by the Method of Geometric Optics

the field varies as the polarisation changes from horizontal to vertical. There are 6 figures.

SUBMITTED: August 22, 1957

Card 2/2 1. Radio waves--Propagation 2. Radio waves--Electromagnetic factors

TARTAKOVSKIY, L.S.

Area of the applicability of Sommerfeld's formula. Radiotekhnika 19 no.11:32-36 N '64. (MIRA 18:2)

1. Deystvitel'nyy chlen Nauchno-tekhnicheskogo obshchestva radiotekhniki i elektrosvyazi imeni A.S. Popova.

108-13-4-5/12

AUTHOR: Tartakovskiy, L.S.

TITLE: General Calculation Formulae for a Field Formed by a Dipole With Random Orientation Which is Located Over a Flat and Homogeneous Earth (Obshchiye raschëtnyye formuly polya, sozdannogo proizvol'no oriyentirovannym dipolem, raspolozhennym nad ploskoy odnorodnoy zemlëy)

PERIODICAL: Radiotekhnika, 1958, Vol 13, Nr 4, pp 36-44 (USSR)

ABSTRACT: The question as to the propagation of radio waves radiated from a dipole located in a certain height h above the flat homogeneous earth ($h > 0$ - raised dipole) or on its surface ($h = 0$ - lowered dipole) was investigated by a number of authors and at present there exists quite a number of formulae for the calculation of special cases. Complete systems of general calculation formulae derived by the author for the voltages of electric and magnetic fields in the air, which are formed by dipoles of various kinds under the conditions mentioned, are given in their final form. On the basis of these formulae it is possible by means of integration to go over to formulae that correspond to the vibrators

Card 1/2

September 26, 2002 CIA-RDP86-00513R001755020010-0"

108-13-4-5/12

General Calculation Formulae for a Field Formed by a Dipole With Random Orientation Which is Located Over a Flat and Homogeneous Earth

of finite length. Here the formulae for the fields of lowered electric dipoles are given. The formulae obtained agree with the known special formulae. Vertical and horizontal dipoles are investigated. Investigation of derived (21) - (23) and other formulae shows that in the case of complex relative magnetic permeability $\mu'_r \neq 1$ the character of the decrease of the normally polarized field may change within the same limits as in the case of parallel polarization. It follows herefrom that in the case of propagation over a domain with iron-ore occurrence on the surface, it might be of advantage to apply normal polarization, i.e. to use a normal horizontal dipole or a horizontal frame. There are 6 references, 3 of which are Soviet.

SUBMITTED: June 3, 1957

AVAILABLE: Library of Congress

1. Dipole antennas--Theory 2. Radio waves--Propagation

Card 2/2

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R001755020010-0"

TARTAKOVSKIY, L.S.

Condition of applicability and relative error of Sommerfeld's formula with refraction index close to unity. Radiotekhnika 20 no.11:15-20 N '65. (MIRA 18:11)

1. Deystvitel'nyy chlen Nauchno-tekhnicheskogo obshchestva radiotekhniki i elektrosvyazi imeni A.S.Popova. Submitted August 7, 1963.

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R001755020010-0"

TARTAKOVSKIY, M., inzhener.

We converted our mill to pneumatic transportation. Muk.-elev. prom. 20 no.6:26-27 Je '54. (MIRA 7:8)

10

1. Minskiy trest Glavmuki.
(Grain milling machinery)

TARTAKOVSKIY, M.

Pneumatic grain handling in the grain cleaning section of the Pinsk flour mill. Muk.-elev.prom. 21 no.10:25-26 O '55. (MLRA 9:1)

1. Belorusskiy trest Glavmuki.
(Pinsk--Grain handling)