S/056/62/043/005/028/058
B102/B104

Depolarization of μ^+ mesons in solids

$f = 0.63$, $\nu\tau = 80$, $\tau \gg 3 \cdot 10^{-9}$ sec. The curve P(x) calculated agrees well with measurements. The asymptotic behavior of the polarization in the case of strong fields ($x^2 \gg \nu\tau \gg 1$) is given by $P = 1-(1-f)\nu\tau/x^3 = 1-30/x^2$. The role of the dielectric constant of the medium is investigated after a discussion of the following depolarization mechanisms: relativistic interaction of the moving muonium with the lattice field; exchange collisions of the crystal electrons with the muonium; formation of a negative muonium ion. $\nu \sim N_-/2 \cdot 10^5$ is obtained for the frequency of spin-exchange collisions, where N_- is the number of free electrons per cm^3. For n-type Si $3 \cdot 10^{12} < N_- < 3 \cdot 10^{13}$ cm^{-3}, $\tau \sim 10^{-8}$ sec, and $5 \cdot 10^{-9} \gg \omega_{o+}^{-1} \gg 3.6 \cdot 10^{-11}$ sec. The fundamental assumptions of the theory, namely the μ^+ depolarization during a certain period which is terminated by ionization of chemical reaction, are finally discussed in detail. There are 2 figures.

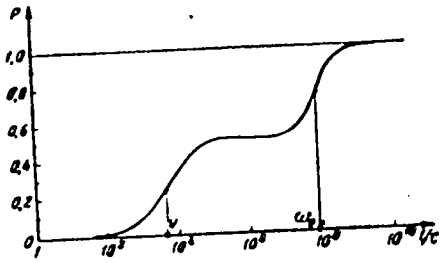
SUBMITTED: May 17, 1962

Card 3/4

S/056/62/043/005/028/058
B102/B104

Depolarization of μ^+ mesons in solids

Fig. 1. Dependence of P on the chemical relaxation time τ. The vertical lines correspond to $1/\tau = \nu$, P=1/4 and $1/\tau = \omega_0$, P=3/4. At the plateau P = 1/2.



Card 4/4

NOSOV, V.G.

Effect of zero vibrations of the form of heavy nuclei on the probability of α-decay. Zhur.eksp.i teor.fiz. 41 no.3:806-809 S '61. (MIRA 14:10)
(Nuclei, Atomic) (Alpha rays--Decay)

84222
S/089/60/009/004/002/020
B006/B070

21.1100
26.2221

AUTHOR: Nosov, V. I.

TITLE: Effectiveness of a System of Rod Absorbers in a Reflected Reactor

PERIODICAL: Atomnaya energiya, 1960, Vol. 9, No. 4, pp. 262 - 269

TEXT: The effectiveness of a rod system in the core of a nonreflected thermal reactor has been studied many times (Refs. 1-3). Here, the author investigates the criticality conditions and the neutron flux distribution for a reflected, homogeneous, thermal reactor in two-group approximation. The absorbing rods are assumed to be circular and arranged at equal distances from one another in the active zone or in the radial reflector, and completely immersed in the reactor, which is supposed to be cylindrical. The equations for the moderator density q(r) and the thermal neutron density n(r) are first written down, and the solutions in the form $q = S_1\psi_1 + S_2\psi_2$, and $n = \psi_1 + \psi_2$ assumed. With $k_\infty/k_{eff} = (1+\alpha^2\tau)(1+\alpha^2L^2)$, where τ is the neutron age, L is the thermal neutron diffusion length,

Card 1/3

Effectiveness of a System of Rod Absorbers in a Reflected Reactor

general solutions for q and n are given, and the boundary conditions are formulated. In the following, the solutions q and n are written down for a cylindrical reactor which is unreflected at the ends and has a symmetrically arranged system of rods in its reflector (see Fig. 1); the boundary conditions are formulated, and the determination of the criticality conditions is discussed. In the next section of the paper, analogous formulas are given for a cylindrical reactor with mantle reflector, in which the rod system is arranged symmetrically in the core. As in the first section, a system of 2(k+1) linear, homogeneous, algebraic equations is obtained for the k-th approximation, which may be solved for the 2(k+1) unknowns. In the last section of the paper, the equations obtained are discussed in detail. Figs. 2 and 3 show the change in the effectiveness of the rod system and of an individual rod as a function of the radius a of the rod for different distances R_c of the rods from the core center (the rods being in the reflector). Fig. 4 shows the dependence of the interference coefficients on the number of rods. From the diagrams it is concluded that the effectiveness of the rod system increases slightly with increasing a and decreases very slightly with

Effectiveness of a System of Rod Absorbers in a Reflected Reactor

increasing R_c. The calculations are made on the assumption that the rods absorb thermal neutrons completely, but do not absorb or slow down fast neutrons. The author thanks Ya. V. Shevelev for discussions, N. N. Ponomarev-Stepnyy and Ye. S. Glushkov for assistance, and R. V. Kuleva for carrying out the calculations. There are 4 figures and 8 references: 5 Soviet, 2 US, and 1 Swiss.

SUBMITTED: November 19, 1959

Card 3/3

20163

S/089/61/010/003/014/021
B102/B205

26.2224

AUTHOR: Nosov, V. I.

TITLE: Effectivity of a system of absorbing elements arranged in circular symmetry in the core of a reflected reactor

PERIODICAL: Atomnaya energiya, v. 10, no. 3, 1961, 269-270

TEXT: In a previous work (Atomnaya energiya, 9, No. 4, 262, 1960), the author used the two-group approximation to study the critical equations for a homogeneous thermal reactor equipped with a system of absorbing rods which were arranged in circular symmetry in the core. These equations were obtained in the form of infinite series. Specifically, the author calculated the case of thin absorbing rods, neglecting the azimuthal dependence of the neutron flux on the surface of the rods and confining himself to first approximation. The present paper describes the calculation of the case of thick absorbing rods with the help of the results of the previous paper. The arrangement of the rods is shown in Fig. 1. The fuel element consists of a thin jacket which is filled with core material. The jacket is absolutely black for thermal neutrons

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Effectivity of a system of ...

without absorbing or slowing down fast neutrons. For this case, the critical equations are given by

$$\left.\begin{aligned}\sum_{k=0}^{\infty}\sum_{m=0}^{\infty}\sum_{n=0}^{\infty}(B_{1m}F_{nNmk}+B_{2m}\Phi_{nNmk})\times\\ \times\cos k\omega_{am}=0;\\ \sum_{k=0}^{\infty}\sum_{m=0}^{\infty}\sum_{n=0}^{\infty}(B_{1m}H_{nNmk}+B_{2m}R_{nNmk})\times\\ \times\cos k\omega_{am}=0.\end{aligned}\right\}\quad(1)$$

B_{1m}, B_{2m} are arbitrary constants; F_{nNmk}, Φ_{nNmk}, H_{nNmk}, R_{nNmk} are the corresponding functions of the radius of the fuel element (a_{fe}), of the radius of the reactor (R_r), of the core radius $R_{a.3}$, and of the properties of fissile material and reflector (N - number of absorbing rods, n - summation index accounting for the azimuthal dependence of the neutron flux; m and k are the summation indices accounting for the azimuthal

Card 2/5

dependence of the neutron flux on the surface of the absorbing elements). If one restricts oneself to the k-th approximation, it is necessary to solve 2(k+1) linear, homogeneous, algebraic equations for 2(k+1) unknowns. The results of numerical computations are given in Fig. 2 and in a table. The latter also contains the values of $a_{fe}/R_{a.3}$ (1) and Δk_{eff} for various approximations. Fig. 2 shows Δk_{eff} as a function of $a_{fe}/R_{a.3}$. From the table and Fig. 2 it follows that the first approximation (k=1) suffices even for thick fuel elements. In the critical equations for a reactor having a system of three fuel elements, the angular dependence of the neutron flux with respect to the reactor may be neglected (n=0). In the case of numerical solutions of the resulting critical equations, it is possible to restrict oneself to the first two terms in the power series of k and n provided the diameters of the absorbers are large enough ($\sim$0.3 $R_{a,3}$). R. V. Kuleva is thanked for calculations. There are 2 figures, 1 table, and 1 Soviet-bloc reference.

SUBMITTED: October 11, 1960

Card 3/5

Effectivity of a system of ...

S/089/61/010/003/014/021
B102/B205

Legend to Fig. 1:
1) Absorbing elements.
2) Core.
3) Reflector.
4) Absorbing jacket.

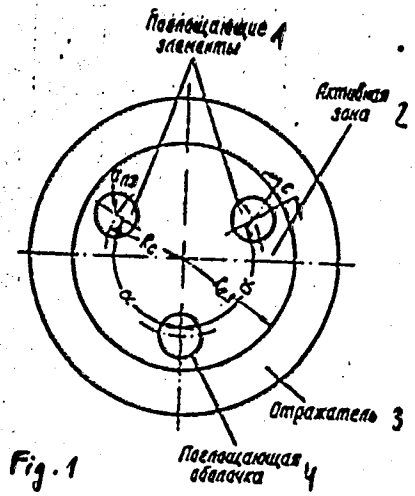

Fig. 1

Card 4/5

Effectivity of a system of ...

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B102/B205

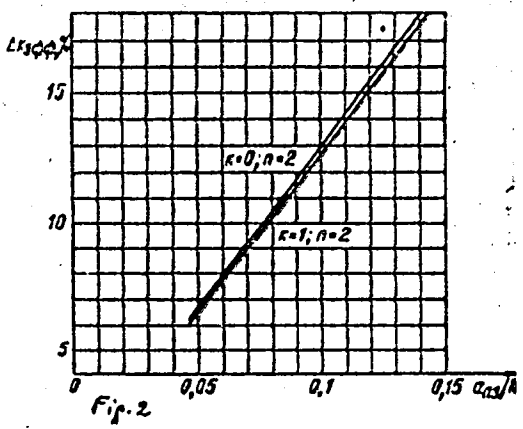

Fig. 2

$\Delta\kappa_{эфф}\%$	$a_{пз}/R_{в.э}$ (1)			
	$\kappa=0; m=0; n=0$	$\kappa=0; m=0; n=2$	$\kappa=1; m=1; n=2$	$\kappa=2; m=2; n=2$
13,56	0,1051	0,1051	0,1073	0,1076
9,56	0,0737	0,0737	0,0750	0,0750

Card 5/5

S/089/62/012/004/008/014
B163/B102

AUTHOR: Nosov, V. I.

TITLE: Effectivity of a system of rods in a reactor with reflector, taking into account epithermal absorption

PERIODICAL: Atomnaya energiya, v. 12, no. 4, 1962, 326-329

TEXT: The effectivity of a system of absorbing rods in a reactor with radical reflector is calculated in a three group approximation. This investigation is an extension of former calculations made by the same author (Atomnaya energiya, 9, no. 4, 262, 1960, and 10, no. 3, 269, 1961) to the case that the epithermal neutron absorption may no longer be neglected. It goes beyond the calculations of B. Wolfe and others insofar as these have only treated the case of large dimension reactors without reflector, and only considered the approximation that the diffusion length of thermal neutrons is small compared with the deceleration length, and further that the rod size is small compared with the diffusion length of thermal neutrons and the reactor dimensions. The results of the calculation can be seen in Figs. 2, 3. There are 3 figures and 10 references: 2 Soviet and 8 non-Soviet.
Card 1/2

Effectivity of a system of ...

SUBMITTED: April 27, 1961

Fig. 2. Dependence of the effectivity of a system of six absorbing rods on the rod radius ($R_{refl} = 1.47\ R_{core}$, $R_c = 1.2\ R_{core}$, R_c is the radius of the circle on which the absorbing rods are arranged). The curves A and B are valid in the case of the rods being absolutely black for epithermal neutrons in the energy intervals 0.15-0.3 resp. 0.15-15 ev. Curve C shows the case when the rods neither absorb nor decelerate the epithermal neutrons. Curve D has been calculated by the two group approximation.

Fig. 3. Radical flux distribution of thermal and epithermal neutrons in a plane ($\varphi = 0$) through the reactor center and one of the rods (rod radius $a = 0.8$ cm; $R_c = 1.2\ R_{core}$).

Legend: (1) active zone; (2) thermal flux; (3) epithermal flux; (4) reflector; (5) absorbing rod.

Card 2/3

L 14929-63 EPF(n)-2/EWT(m)/BDS AFFTC/ASD/AFWL/SSD Pn-4 DM
ACCESSION NR: AP3003983 S/0089/63/015/001/0071/0074

60

AUTHOR: Nosov, V. I.

TITLE: Efficiency of absorbing rods placed at random in a reflecting reactor

SOURCE: Atomnaya energiya, v. 15, no. 1, 1963, 71-74

TOPIC TAGS: reactor control rod , reflecting nuclear reactor

ABSTRACT: In the previous papers by the author (Atomnaya energiya, 9, 1960, 262; 10, 1961, 269; 12, 1962, 326), the critical conditions and the distributions of the neutron flux were calculated for a homogeneous reactor working with thermal neutrons. The control rods were assumed to be evenly spaced in a circle in the active zone, or with respect to the radial reflector. The present work extends the developed calculations for the case of absorbing rods fully introduced into the reactor, and spaced at random. "The author expresses his gratitude to N. N. Ponomarev-Stepnoy for valuable suggestions and help in the development of computation methods of the efficiency of controls in a reactor with reflector". Orig. art. has: 4 equations and 1 figure.

ASSOCIATION: none

Card 1/1

POMOMAREV-STEPNOY, N.N.; NOSOV, V.I.

Theoretical and experimental studies on the efficiency of absorbing control rods in a reflected reactor. Atom. energ. 17 no.2:103-107 Ag '64 (MIRA 17:8)

L 14360-65
ACCESSION NR: AP4043985

SUBMITTED: 10Oct63 ENCL: 00

SUB CODE: NP NO REF SOV: 003 OTHER: 006

LEVCHENKO, D.G., NOSOV, V.M.

Measuring apparatus for two-frequency inductive electric prospecting. Geol.i geofiz. no.1:134-136 '63. (MIRA 16:4)

1. Institut avtomatiki i elektrometrii Sibirskogo otdeleniya AN SSSR, Novosibirsk.

(Electric prospecting)

NOSOV, V. N.; PONOMAREV-STEPNOY, N. N.; PORTNOY, K. I.; SAVELYEV E. G.

"Absorption materials of the dispersion type for the control organs of thermal reactors."

Report presented at the Symposium on Physics and Material Problems of Reactor Control Rods Program, Vienna, 11-15 Nov 63.

L 19472-63 EWP(q)/EWT(m)/EWP(B)/BDS AFFTC/ASD JD
ACCESSION NR: AT3002248 S/2941/63/001/000/0353/0359

AUTHORS: Fridkin, V. M. ; Nosov, V. N.

TITLE: The role of barrier contact in radiation mechanism of ZnS-films

SOURCE: Optika i spektroskopiya; sbornik statey. v. 1: Lyuminestsentsiya. Moscow, Izd-vo AN SSSR, 1963, 353-359

TOPIC TAGS: kinetics, ion, negative charge, corona discharge, quenching

ABSTRACT: The kinetics of radiation in a negatively charged film of ZnS-Cu, Cl was investigated, first under the action of direct electrical impulses of variable duration and then under an opposing field of linearly increasing potential. The negative ionic charge on the film was produced by corona discharge in air. Furthermore, to study the relation between quenching and electron redistributions in energy levels, the film was charged and pre-irradiated by the above time-dependent opposing electric field with linearly increasing potential. Curves were obtained for radiation intensity as a function of time with different, positively charged, variable impulses and linearly increasing potential as parameters. The results are interpreted by means of a concept whereby the adsorbed ions on the film surface form a space charge. The presence of this space charge then forms a surface

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L 19472-63

ACCESSION NR: AT3002248

4

barrier. This is connected to ions in ionization levels by means of electrons tunneling through the surface barrier (first transition) and to radiation centers (third transition). "The author is grateful to I. N. Orlov, F. F. Vol'kenshteyn, A. M. Bonch-Bruyevich, and L. S. Zheludev." Orig. art. has: 8 figures.

ASSOCIATION: none

SUBMITTED: 20Jan62 DATE ACQ: 19May63 ENCL: 00

SUB CODE: PH NO REF SOV: 007 OTHER: 003

Card 2/2

L 26746-66 EWT(1)/EWT(m)/EEC(k)-2/EWP(t) IJP(c) JD

ACC NR: AP6011475 SOURCE CODE: UR/0070/66/011/002/0322/0323

AUTHOR: Nosov, V. N.; Lyakhovitskaya, V. A.

ORG: Institute of Crystallography, AN SSSR (Institut kristallografii AN SSSR)

TITLE: Observation of the electro-optical effects in SbSI when measuring photoconductivity spectra

SOURCE: Kristallografiya, v. 11, no. 2, 1966, 322-323

TOPIC TAGS: electrooptic effect, antimony compound, photoconductivity, forbidden band, pressure effect, absorption edge, Curie point, single crystal

ABSTRACT: This is a continuation of earlier work by one of the authors (Lyakhovitskaya, with K. Gulyamov et al., DAN SSSR v. 161, no. 5, 1060, 1965) dealing with the shift of the width of the forbidden band with pressure. In the present investigation the authors checked on the shift of the absorption edge with increasing field by investigating the photoconductivity of SdSI. The measurements were made with single crystals grown from the melt, with the field applied along the c axis. The maximum of the spectral distribution of the photocurrent coincided with the edge of the absorption band and was close to 650 nm at room temperature. The temperature was close to the Curie temperature 23.5 ± 0.1C. The result shows that the maximum of the photocurrent shifts by 7 ± 1 nm, corresponding to an energy shift per unit field of 1.1 x 10^{-5} ev/v. This is in satisfactory agreement with the results of J. Harbeke (J. Phys. Chem. Solids v. 24, 957, 1963). The authors thank V. M. Fridkin for a discussion of the results and help with the work. Orig. art. has: 1 figure.

SUB CODE: 20/ SUBM DATE: 24May65/ ORIG REF: 002/ OTH REF: 005

Card 1/1 FV UDC: 548.0

ACCESSION NR: AP4019835 S/0181/64/006/003/0764/0770

AUTHORS: Abdulgamidov, S. A.; Zheludev, I. S.; Nosov, V. N.; Fridkin, V. M.

TITLE: On internal field distribution in single crystal photoelectrets

SOURCE: Fizika tverdogo tela, v. 6, no. 3, 1964, 764-770

TOPIC TAGS: internal field distribution, single crystal, photoelectret, photoelectric field, interelectrode spacing, space charge, field distribution

ABSTRACT: The hetero- and homocharge distributions in photoelectrets of single crystals of additive-colored KCl, S, $K_2Cr_2O_7$ and CdS have been investigated, using the light probe technique of M. Y. Ben Sira, B. Pratt, E. Harnik, and A. Many (Phys. Rev. 115, 55, 1929) and Harnik, Ben Sira, Pratt, and S. Peter (J. Appl. Phys., 34,207, 1963). It consists of depolarizing the photoelectret by means of a light probe in a direction perpendicular to the internal photoelectric field. The KCl specimen was polarized first by a 0.5-kv field with exposure of the whole crystal surface to 546m monochromatic light, and subsequently by a 2.0-kv field with central illumination only. Internal field distributions are represented graphically as functions of the interelectrode spacing. Both barrier type and space

Card 1/2

ACCESSION NR: AP4019835

charge type distributions are observed. For the central illumination case an asymmetric field distribution was noticed relative to the crystal center. Similar experiments were performed on the rest of the specimens. In CdS, under all polarization time durations, the field showed an inverse direction at the cathode and a forward, positive direction at the anode. Orig. art. has: 6 figures and 3 formulas.

ASSOCIATION: Institut kristallografii AN SSSR Moscow (Institute of Crystallography AN SSSR)

SUBMITTED: 29Aug63	DATE ACQ: 31Mar64	ENCL: 00
SUB CODE: PH	NO REF SOV: 006	OTHER: 006

Card 2/2

L 38892-66 EWT(1)/EWT(m)/T/EWP(t)/ETI IJP(c) JD

ACC NR: AP6018559 SOURCE CODE: UR/0181/66/008/006/1907/1909

AUTHOR: Fridkin, V. M.; Gulyamov, K.; Lyakhovitskaya, V. A.; Nosov, V. N.; Tikhomirova, N. A.

ORG: Institute of Crystallography, AN SSSR, Moscow (Institut kristallografii AN SSSR)

TITLE: Anomaly of optical properties of ferroelectric SbSI in the phase-transition region

SOURCE: Fizika tverdogo tela, v. 8, no. 6, 1966, 1907-1909

TOPIC TAGS: antimony compound, phase transition, Curie point, ferroelectric property, forbidden band, pressure effect, paraelectricity, electron interaction, phonon interaction, temperature dependence, absorption edge, optic property

ABSTRACT: This is a continuation of earlier work (DAN SSSR v. 161, 1060, 1965), where an anomalously large shift of the intrinsic-absorption edge was observed in SbSI single crystals with increasing pressure. The present study is devoted to a more detailed investigation of this shift, and discloses that the anomaly appears only in the vicinity of the phase transition. The authors measured the dependence of the width of the forbidden band E_g on the hydrostatic pressure p and the temperature T in the phase-transition region. The crystals were grown from the gas phase, the width of the forbidden band was determined by measuring the shift of the maximum of the photocurrent, and the high pressure was produced with apparatus described elsewhere (FTT v. 7, 4, 1965). The pressure was measured with a resistance manometer and the temperature was

Card 1/2

measured in a vacuum thermostat. The results show that in the vicinity of the Curie point the values of dE_g/dT and $(\partial E_g/\partial p)_T$ became anomalously large. Away from the phase-transition point, the variation of E_g is the same as determined by the direct electron-phonon interaction $dE_g/dE_T \propto (\partial E_g/\partial T)_V$, whereas in the phase transition region dE_g/dT is determined by the temperature expansion of the crystal and $dE_g/dT \gg (\partial E_g/\partial T)_V$. On going from the ferroelectric into the paraelectric region, the electron-phonon interaction terms decreases in absolute value by a factor of almost 2. The authors thank V. L. Bonch-Bruyevich, R. A. Suris, and A. P. Levanyuk for a discussion of certain results obtained in the present work. Orig. art. has: 3 figures.

SUB CODE: 20/ SUBM DATE: 07Jul65/ ORIG REF: 002/ OTH REF: 003

L 28446-66 EWT(m)/EWP(t)/ETI/EWP(k) IJP(c) JD/HW

ACC NR: AP6016580 (A) SOURCE CODE: UR/0182/66/000/005/0026/0027

AUTHOR: Antonenkov, O. D.; Anuchin, M. A.; Kulagin, A. F.; Nosikov, S. M.

CRG: none

39
8

TITLE: Coefficient of reduction in explosive forming

SOURCE: Kuznechno-shtampovochnoye proizvodstvo, no. 5, 1966, 26-27

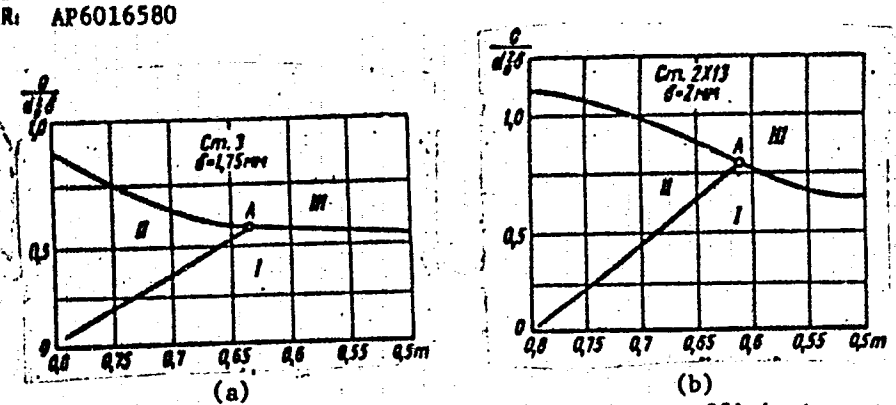
TOPIC TAGS: explosive forming, steel sheet, sheet forming, steel formability

ABSTRACT: Experiments have been conducted to determine the relationship between reductions in explosive forming and the weight of the explosive charge. Steel specimens 70—300 mm in diameter were tested in two explosive forming units of different design (one with a soft and another with a rigid water container) with explosive charges of varying weight suspended at a certain constant height above the tested material. The results of experiments with St3 and 2K13 steels are shown in Fig. 1, in which the horizontal axis represents reductions (the ratios of cup diameter to blank diameter) and the vertical axis represents the specific charge weights ($g/d_0^2\delta$, where g is the charge weight in g, d_0 is the die diameter in mm, and δ is the sheet thickness in mm). Region I represents the conditions under which the desired reduction cannot be obtained in a single operation; region II, the con-

Card 1/2 UDC: 621.98.044

L 28446-66

ACC NR: AP6016580



(a) (b)

Fig. 1. Dependence of the reduction coefficient upon the explosive charge weight.

a) St3 steel; b) 2Kh13 steel.

ditions under which full reductions are obtained without material failure; and region III, the conditions under which the material fails. Point A represents optimal conditions under which maximum reduction (0.63—0.67) can be obtained in a single operation. Orig. art. has: 4 figures. [ND]

SUB CODE: 13/ SUBM DATE: none/ ORIG REF: 002/ ATD PRESS: 5006

Card 2/2

MOSOV, V.R. (Moskva)

Mixed problem for a hyperbolic [illegible] region. Zhur. vych. mat. i mat. [illegible] (MIRA 18:2)
'64.

NOSOV, V.R.

Mixed problem for a hyperbolic equation in a normal cylinder.
Izv. AN SSSR. Ser. mat. 29 no.4:861-876 '65. (MIRA 18:9)

L 26004-66 EWT(d) IJP(c)

ACC NR: AP6012559 SOURCE CODE: UR/0040/66/030/002/0399/0403

AUTHOR: Nosov, V. R. (Moscow)

ORG: none

TITLE: A problem arising in the theory of optimal control with aftereffects

SOURCE: Prikladnaya matematika i mekhanika, v. 30, no. 2, 1966, 399-403

TOPIC TAGS: optimal control, boundary value problem, functional equation, vector function, integral operator, uniqueness theorem

ABSTRACT: The following system and functional are examined:

$$x'(t) = A(t)x(t) + B(t)x(t-\tau) + M(t)u(t), \quad x(t) = \varphi(t), \quad t \in [a-\tau, a]$$

and

$$I[u] = \frac{1}{2}\int_a^\tau (x^*(t)F(t)x(t) + x^*(t-\tau)G(t)x(t-\tau) + u^*(t)H(t)u(t))\,dt.$$

The problem of finding their optimal control is equivalent to the boundary value problem

$$\begin{cases} x'(t) = A(t)x(t) + B(t)x(t-\tau) - M(t)H^{-1}(t)M^*(t)z(t) \\ z'(t) = -A^*(t)z(t) - B^*(t+\tau)z(t+\tau) - [F(t) + G(t+\tau)]x(t) \\ x(t) = \varphi(t), \quad t \in [a-\tau, a]; \qquad z(t) = 0, \quad t \in [b, b+\tau]. \end{cases}$$

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L 26004-66

ACC NR: AP6012559

Certain simple sufficient conditions for the existence of a unique solution of the boundary value problem in more general form are established. The integral operator

$$\begin{cases} x(t) = \varphi(a) + \int_a^t (A(\xi)x(\xi) + D(\xi)x(\xi - \tau(\xi)) + C(\xi)y(\xi) + f_1(\xi))\,d\xi \\ y(t) = \psi(b) + \int_b^t (D(\xi)y(\xi) + E(\xi)y(\xi + \tau(\xi)) + F(\xi)x(\xi) + f_2(\xi))\,d\xi \end{cases}$$

has a unique fixed point, which is a solution of the more general form of the problem

$$\begin{cases} x'(t) = A(t)x(t) + B(t)x(t - \tau(t)) + C(t)y(t) + f_1(t) \\ y'(t) = D(t)y(t) + E(t)y(t + \tau(t)) + F(t)x(t) + f_2(t) \\ x(t) = \varphi(t), \quad t \leq a; \qquad y(t) = \psi(t), \quad t \geq b. \end{cases}$$

Two theorems are employed. Orig. art. has: 37 formulas.

SUB CODE: 12/ SUBM DATE: 21Mar65/ ORIG REF: 001/ OTH REF: 002

Card 2/2

SYROMYATNIKOV, N. I.; NOSOV, V. S.

"Heat transfer in a dust-gas flow in tubes."

report submitted for 2nd All-Union Conf on Heat & Mass Transfer, Minsk, 4-12 May 1964.

Ural' Polytechnic Inst.

KOSOV, V. S., inzh.; LEGEYDA, N. F., inzh.; IMSHENETSKIY, V. I., inzh.[deceased]

Hardening by heat treatment of low-carbon steels. Met. i gornorud. prom. no.1:25-30 Ja-F '63. (MIRA 16:4)

1. Ukrainskiy institut metallov (for Kosov, Legeyda). 2. Kommunarskiy metallurgicheskiy zavod (for Imshenetskiy).

(Steel—Hardening)

LEGEYDA, N.F.; TSELUYKO, V.I., ROSOV, V.S.

Mechanical properties of St 3kp steel depending on conditions of heat treatment. Metalloved. i term. obr. met. no.4: 38-40 Ap '64. (MIRA 17:6)

1. Ukrainskiy nauchno-issledovatel'skiy institut metallov.

RUBTSOV, G.K.; NOSOV, V.S.; SYROMYATNIKOV, N.I.

Rapid heating of electrical steel in a fluidized bed.
Metalloved. i term. obr. met. no. 6:40-42 Je '64.

1. Ural'skiy politekhnicheskiy institut.

NOSOV, V.S.; LEGEYDA, N.F.; TIMOFEYEV, D.I.

Sheet hardening in hardening presses. Met.i gornorud. p.[illegible] no.[illegible] (MIRA 18:1)
33 N-D '63.

LEGEYDA, N.F.; TYURIN, N.F.; NOSOV, V.S.

Investigatinf the mechanical properties of thick St. 3kp steel sheet made from various parts in height of an ingot, before and after heat treatment. Sbor. trud. UNIIM no.9:394-404 '64 (MIRA 18:1)

NOSOV, V.S., inzh.; SYROMYATNIKOV, N.I., doktor tekhn. nauk, prof.

Study of the heat emission of a polydispersed dust and gas stream in vertical channel. Izv. vys. ucheb. zav.; energ. 7 no.12:68-73 D '64. (MIRA 18:2)

1. Ural'skiy politekhnicheskiy institut imeni S.M. Kirova. Predstavlena kafedroy teoreticheskikh osnov teplotekhniki.

GOLUBOV, N.M.; LEGEYDA, N.F.; ZAKHAROV, A.Ye.; KAPUYEV, A.Yu.; PAN'KIN, N.I.; SAPRYGIN, Kh.M.; MOSOV, V.S.; VOL'TER, Ye.V.; SHUL'GA, Ye.A.; MIROSHNICHENKO, S.I.

Effect of the rate of plate cooling on the quality of the metal after rolling. Met. i gornorud. prom. no.1:33-36 Ja-F '65. (MIRA 18:3)

NOSOV, V.S. (Sverdlovsk); SYROMYATNIKOV, N.I. (Sverdlovsk)

Hydraulic resistance and heat emission of pulverized fuel and gas streams. Izv. AN SSSR.Energ. i transp. no.1:149-152 Ja-F '65. (MIRA 18:4)

L 9643-66 EWT(m)/EWP(w)/EWA(d)/T/EWP(t)/EWP(z)/EWP(b) IJP(c)/JD

ACC NR: AP5027704 SOURCE CODE: UR/0129/65/000/011/0020/0021

AUTHOR: Zakharov, A. Ye.; Legeyda, N. F.; Nosov, V. S.; Vol'ter, Ye. V.

ORG: none

TITLE: Heat treatment of low-carbon and low-alloy steel plate

SOURCE: Metallovedeniye i termicheskaya obrabotka metallov, no. 11, 1965, 20-21

TOPIC TAGS: metal heat treatment, tempering, cooling, ferritic steel, pearlite steel

ABSTRACT: The Ukrainian Scientific Research Institute of Metals in collaboration with the TsNIIChERMET and the Kommunar Metallurgical Plant developed a new industrial process of the heat treatment (quenching and tempering) of St. 3 steel plate: quenching from 890-910°C and water cooling in the press, followed by tempering at 500°C. At the Kommunar Plant the thermal hardening is carried out in continuous roller hearth furnaces. Plate 4-50 mm thick and up to 12 m long can be cooled in the press. The squeeze exerted by the press is 130 tons; the water-spray pressure is 2-3 atm. The microstructure of the plate is initially (after rolling) ferritic with a small amount of pearlite; following thermal hardening this microstructure is pearlitic-ferritic (the amount of pearlite increases). Studies of the mechanical properties of St. 3ps steel before and after this heat treatment revealed a marked increase in the impact strength of thermally hardened steel (3.9-7.4 kg-m/cm^2) compared with the im-

Card 1/2 UDC: 669.15-194:621.785.74

L 9643-66

ACC NR: AP5027704

pact strength of the nonhardened steel (1-1.7 kg-m/cm^2) at temperatures as low as -40°C. In both cases the threshold of cold brittleness is the same, -25 to -30°C. Thermal hardening enhances the fatigue limit from 6 to 32% and reduces susceptibility to stress concentration. This technique of heat treatment was experimentally tested not only in furnaces but also in rolling mills on employing a special installation for utilizing the heat of rolling in order to increase the mechanical properties of the plate. In addition, the effect of accelerated water cooling was also investigated, for the steels 14KhGS, SKhL-4, 09G2, 4S, 5K, M16S, 3M, 20K (plate thickness 10-24 mm) Findings: thermal hardening during rolling increases tensile and yield strength by an average of 2-4 kg per mm^2 and impact strength, by 0.5-1.5 kg-m/cm^2, while at the same time reducing relative elongation by ~2%, i. e. the increase in mechanical properties is considerable. As the thickness of the steel plate increases, the effect produced by water cooling decreases, and in the presence of 20-mm thickness this effect no longer is active. Orig. art. has: 1 figure.

SUB CODE: 11, 13/ SUBM DATE: none/ ORIG REF: 000/ OTH REF: 000

Card 2/2

L 1657-66 EWT(l),EWP(m)/ETC/EPF(c)/EPF(n)-2/EWG(m)/EWA(d)/FCS(k)/EWA(l) WW

ACCESSION NR: AP5019428 UR/0020/65/163/003/0624/0627

AUTHOR: Nosov, V. S.; Syromyatnikov, N. I.

TITLE: Fundamental relationships of heat transfer in finely dispersed flows

SOURCE: AN SSSR. Doklady, v. 163, no. 3, 1965, 624-627

TOPIC TAGS: heat transfer, flow analysis, graphite

ABSTRACT: The authors study heat exchange between a heated surface and a suspension of graphite in air in a path which is closed for both phases. A tube 25 mm in diameter was used with particles of natural graphite 0.0103 mm in size, and a heat exchange surface of 0.0742 m^2 in area. The coefficient of heat transfer and the quantity of transmitted heat were determined by the enthalpy method and the steady thermal flow method. The weight concentration of the solid phase was varied from 0 to 242 kg/kg, the bulk density of the material being 440 kg/m^3. Similarity theory and dimensional analysis were used in interpreting the results. It was found that the relationship between concentration and heat exchange varies in regions where the stream is saturated by solid particles, and that the mechanism of radial heat transfer also varies. The heat transfer coefficient reaches a maximum at a concentration

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L 1657-66

ACCESSION NR: AP5019428

3

of 110-130 kg/kg (30% of the density of the static layer). This is the critical point in the heat transfer process. Both the relative and absolute values of the heat transfer coefficient decrease with a further increase in concentration. The optimum density of the flow depends on the size and shape of the particles, increasing with the diameter of the particles and the bulk density of the material. The optimum density is independent of the flow velocity. When the concentration is less than 30 kg/kg, heat exchange is 2-2.5 times higher for heating of a finely dispersed flow than for cooling. This is explained by the presence of fine particles on the cold surface of the tube. At higher concentrations, the results are identical for heating and cooling. The material properties of the particles have practically no effect on the heat transfer coefficient. Orig. art. has: 3 figures, 9 formulas.

ASSOCIATION: Ural'skiy politekhnicheskiy institut im. S. M. Kirova (Ural Polytechnical Institute)

SUBMITTED: 25Jan65 ENCL: 00 SUB CODE: TD, ME

NO REF SOV: 002 OTHER: 002

Card 2/2

ZAKHAROV, A.Ye.; LEGEYDA, N.F.; NOSOV, V.S.; VOL'TER, Ye.V.

Heat treatment of low-carbon and low-alloy sheet steel.
Metalloved. i term. obr. met. no.11:20-21 N '65.
(MIRA 18:12)

L 13051-66 EWT(m)/EWA(d)/EWP(t)/EWP(z)/EWP(b) IJP(c) JD

ACC NR: AP5027912 SOURCE CODE: UR/0133/65/000/011/1036/1039

AUTHOR: Kazarnovskiy, D. S. (Doctor of technical sciences); Dryapik, Ye. P. (Engineer); Legeyda, N. F. (Engineer); Zakharov, A. Ye. (Engineer); Balon, V. I. (Engineer); Vol'ter, Ye. V. (Engineer); Kosov, V. S. (Engineer); Konstantinova, T. A. (Engineer); Sukhomlina, A. P. (Engineer)

ORG: Ukrainskiy n.-i. Institute of Metals (Ukrainskiy n.-i. institut metallov); Kommunarskiy Metallurgical Plant (Kommunarskiy metallurgicheskiy zavod)

TITLE: Strengthening of low carbon semikilled St. 3ps steel by heat treatment

SOURCE: Stal', no. 11, 1965, 1036-1039

TOPIC TAGS: carbon steel, low carbon steel, heat treating furnace

ABSTRACT: A heat treatment was developed for St. 3ps steel plates of 12 and 25 mm thickness by heating in a furnace to the temperature range 890-920°C and water cooling on a quench press. This treatment resulted in an average strengthening of 20% and a satisfactory plasticity level. Three separate heats of steel were heat treated. The compositions ranged as follows: C--0.16-0.19%; Mn--0.46-0.52%; Si--0.08-0.12%; S--0.036-0.041%; Ps--0.012-0.034% and Cu--0.050-0.058%. The details of the process were described. The steel plates were heated in a roller type furnace to temperature for a holding time of 1.5 min/mm. Cooling was done in a quench press with a water flow

UDC: 621.78

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L 13051-66
ACC NR: AP5027912 /

rate of 1700 m^3/hr. After quenching, some warpage could be noted, particularly in thicknesses up to 20 mm. Mechanical properties of the heat treated plate in flat and round specimens were determined. Yield strength, ultimate strength, % elongation, % reduction in area and impact resistance were tabulated for heat I (12 mm thick), heat II (12 and 25 mm thick) and heat III (25 mm thick). Frequency curves were plotted for the mechanical properties of the heat treated plate (frequency of occurrence as a function of strength, ductility and impact resistance) and average values were given for these properties. The effect of tempering after quenching was also noted. In general, the strength decreased slightly and the ductility increased. Tempering had little effect on impact resistance. Microstructures showed that the structures after quenching were predominantly pearlitic-ferritic, with needle-like ferrite distributed along grain boundaries for the 12 mm thick plates while in the 25 mm thick plates there was smaller grained, needle-like ferrite. The highest strengths and lowest ductility were obtained in the 12 mm plate. However, the mechanical properties obtained never fell below the following levels for the heat treated condition: yield stress--30 kg/mm^2, ultimate strength--44 kg/mm^2, % elongation--16, and impact strength (at -40°C)--3 kgm/cm^2. It was recommended that low carbon steel plate, strengthened by the above treatment, be used in place of low alloyed steel. To be effective the optimum carbon content for heat treatment should be 0.12-0.18%. Orig. art. has: 3 figures, 2 tables.

SUB CODE: 11/ SUBM DATE: 00/ ORIG REF: 004/ OTH REF: 000

Card 2/2

L 44364-66 EWT(1) GW

ACC NR: AP6030614 SOURCE CODE: UR/0413/66/000/016/0105/0105

INVENTOR: Nosov, V. V.; Rzhevskiy, V. V.

19

ORG: none

TITLE: Device for strength determination of soft rocks. Class 42, No. 185099 B

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 16, 1966, 105

TOPIC TAGS: rock strength, rock mechanics, rock strength gauge, petrology, drilling machine

ABSTRACT: A device has been designed to determine the strength of soft rocks. It consists of a free-traveling piston connected to a liquid-filled cylinder and measuring

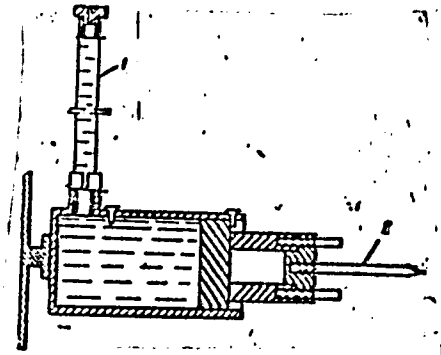

Fig. 1. Strength-determination device

1 - Glass tube; 2 - rod.

Card 1/2 UDC: 539.533.002.54: 622.023.6

L 44383-65

ACC NR: AP6030614

element by means of a steel rod. The measuring element contains a balancing liquid whose height in the glass tube is directly proportional to the amount of resistance offered by the rock as it is pierced by the rod. Fig. 1 shows a cross section of the device. Orig. art. has: 1 figure. [DM]

SUB CODE: 08/ SUBM DATE: 24Mar65/ ATD PRESS: 5077

Card 2/2

L 2142-66 EWT(1)/FCC GW

ACC NR: AP5025491 SOURCE CODE: UR/0203/65/005/005/0958/0960

43
B

AUTHOR: Granitskiy, L. V.; Neyermolov, A. F.; Nosov, V. Ye.

ORG: Institute of Terrestrial Magnetism, the Ionosphere, and Radio Wave Propagation, SO AN SSSR (Institut zemnogo magnetizma, ionosfery, i rasprostraneniya radiovoln SO AN SSSR)

TITLE: Decade counter with ferrite-transistor elements

SOURCE: Geomagnetizm i aeronomiya, v. 5, 1965, 958-960

TOPIC TAGS: pulse counting, decade counter

ABSTRACT: A decade counter with three ferrite-transistor flip-flops and one four-winding core with rectangular hysteresis loop is described. As seen from Fig. 1, the Tp_2 core switches into the 1 state at the count of 8. The ninth and tenth pulses alternately switch the first flip-flop (Tp_3) into the 1 and 0 states. Winding W_2 of Tp_3 transmits this transition to core Tp_2 and switches it into the 0 state. The pulse emanating at this time from Tp_2 winding W_4 triggers the blocking generator (T_1 and Tp_1), which resets all the flip-flops. The counter functions in the ambient temperature range of -30C to +55C. The bias voltage E_k may vary from 9 to 22v without affecting the operation of the counter. The limiting counting frequency is

UDC: 539.1.075

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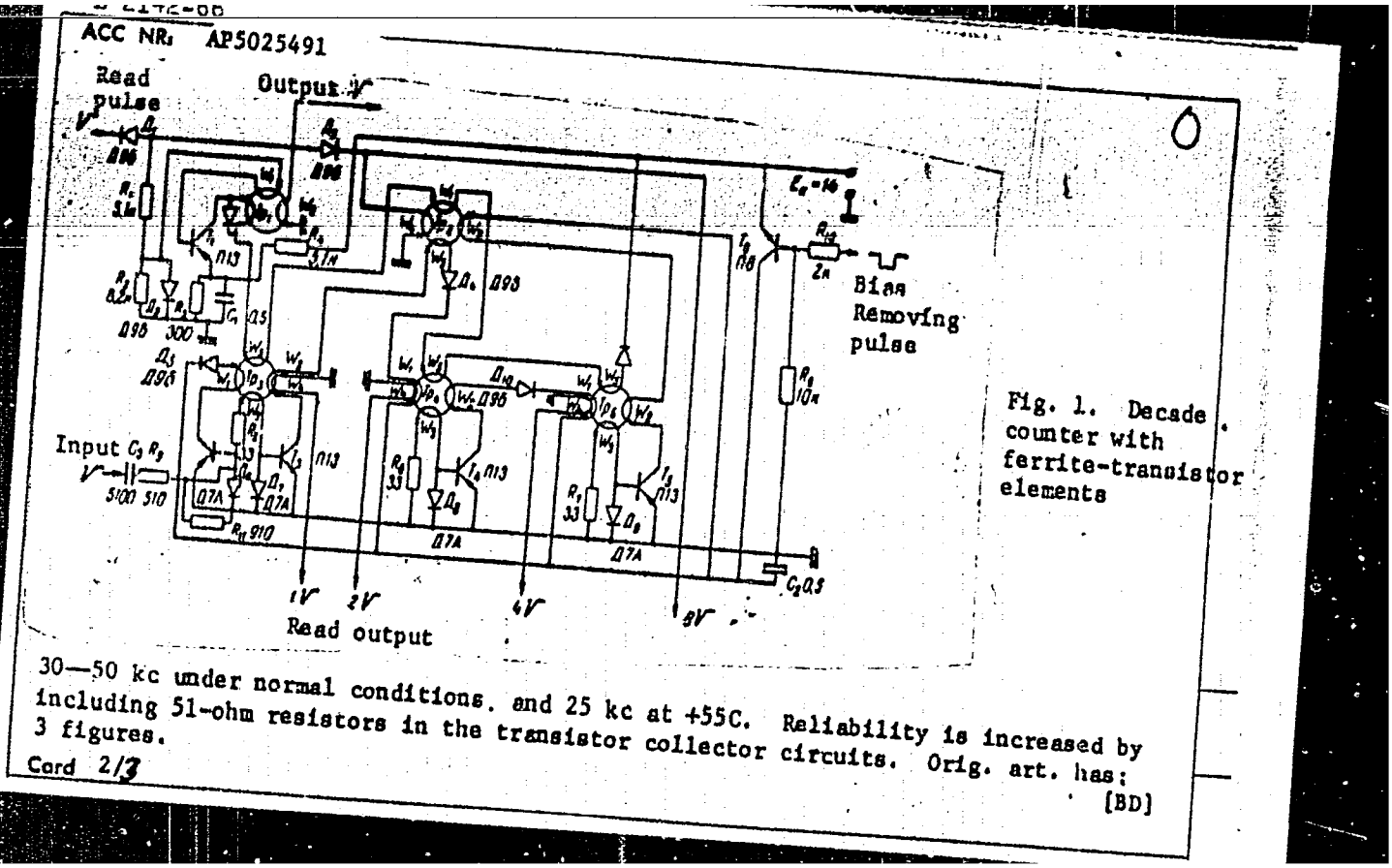
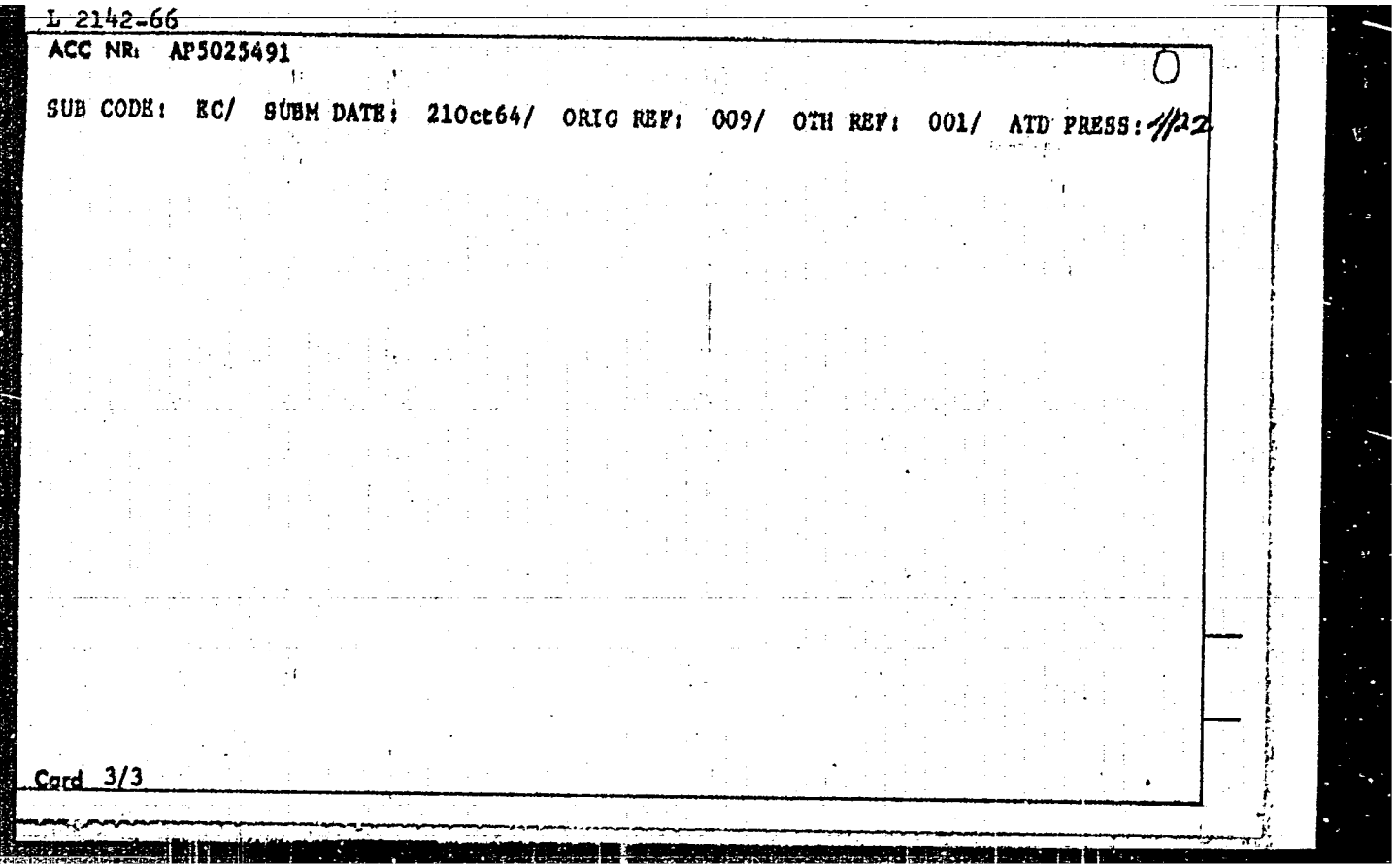


Fig. 1. Decade counter with ferrite-transistor elements

30—50 kc under normal conditions. and 25 kc at +55C. Reliability is increased by including 51-ohm resistors in the transistor collector circuits. Orig. art. has: 3 figures.

[BD]



L 2142-66
ACC NR: AP5025491 O
SUB CODE: EC/ SUBM DATE: 21Oct64/ ORIG REF: 009/ OTH REF: 001/ ATD PRESS: 4122
Card 3/3

NOSOV, V.Z.

Every second worker is a voluntary inspector. Put' i put. khoz. 9 no.11:18-19 '65. (MIRA 18:11)

1. Starshiy inzh. i nachal'nik shtaba obshchestvennykh inspektorov, stantsiya Chishmy, Kuybyshevskoy dorogi.

NOSOV, Ye.; PYATKOVSKIY, A.

Placing the concrete of a buttress in movable formwork. Prom. stroi. i inzh. soor. 5 no.3:51-54 My-Je '63. (MIRA 16:7)

1. Glavnyy inzh. stroitel'nogo upravleniya "Khimstroy" tresta "Kommunarskstroy" (for Nosov). 2. Glavnyy tekhnolog tresta "Kommunarskstroy" (for Pyatkovskiy).
(Coke ovens—Design and construction)
(Concrete construction)

NOSOV, Ye., vtoroy pilot (Yuzhno-Sakhalinsk)

Boris. Grazhd. av. 20 no.10:7 O '63. (MIRA 16:12)

BURTSEV, A.D.; SAGUSHYY, V.V.; LUPANOV, B.P.; BOGACHEV, A.F.; SMIRNOV, G.P.; ANDRONOVA, Ye.I.; GIZMAYYER, V.K.; PINES, A.V.; SHEVCHUK, R.S.; BOSOV, Ye.S.; DOROSHENKO, S.P.; KUGEL', D.B.; ZOLOTNIKOV, N.M.; SHPILENKO, A.M.; VASILYUK, A.P.; SVIRIDOV, I.A.

Using exothermic mixtures for heating the heads of steel castings. Prom.energ. 15 no.6:14 Je '60. (MIRA 13:7)
(Founding)

NOSOV, Yu., inzhener

Mechanized roof caving in Moscow Basin mines. Mast.ugl.4 no.9: 4-6 S '55. (MLRA 9:1)
(Moscow Basin--Coal mines and mining)

NOSOV, Yu., inzhener

Extendible metal prop for temporary mine support. Mast.ugl.4 no.7:19 Jl'55. (MLRA 8:10)
(Mine timbering)

KOSOV, Yu.A., Cand Tech Sci--(diss) "Study of compact fitting of sprinkler hydraulic [illegible]." Mos, 1958. 10 pp (Min of Higher Education. Mos Order of L in Vibration Inst i. S Ordzhonikidze), 110 copies (KL,28-58,102)

- 10 -

AUTHORS: Nosov, Yu. A., Ratner, S. B. SOV/57-28-7-15/35

TITLE: On the Force of the Radial Contraction of Rubber Rings at a Temperature Drop (O sile radial'nogo szhatiya rezinovykh kolets pri ponizhenii temperatury)

PERIODICAL: Zhurnal tekhnicheskoy fiziki, 1958, Vol. 28, Nr 7, pp. 1448 - 1451 (USSR)

ABSTRACT: The influence of the cooling, the role played by the degree of contraction and the role of the cross-sectional form in contraction and bending were investigated. The authors arrived at the following conclusions: 1.) The cooling of rubber packings leads to a steep decrease of the radial force the intensity of which is proportional to the initial pressure. The relative change of the force does hardly depend on the degree of deformation of the packings stressed by contraction. This points to the main part of the loss of high-elasticity as well as to the secondary role played by the linear expansion coefficient. 2.) The magnitude of the contact force remaining after cooling is proportional to the initial pressure. The packings stressed by bending on cooling lose a much

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On the Force of the Radial Contraction of Rubber Rings at a Temperature Drop SOV/ 57-28-7-15/35

smaller part of their radial force. 3.) The method of a consecutive cutting-off of the various parts of the packing with complicated cross section offers the possibility to explain the role played by these parts in the packing. M.G. Vol'pe (deceased), K. S. Konenkov, V.M. Koroleva, Ya.F. Lazarenko, K. I. Medvedeva, and Z.Ye. Styran took part in these experiments. There are 3 figures and 3 Soviet references.

SUBMITTED: March 12, 1957

1. Rubber gaskets--Temperature factors

Card 2/2

RATNER, S.B., kand.fiz.-mat.nauk; NOSOV, Yu.A., inzh.; KONENKOV, K.S., inzh.

Measuring the radial compression force of rubber sealings resulting from temperature drops. Vest. mash. 38 no.9:24-26 S '58. (MIRA 11:10)

(Sealing (Technology)) (Rubber goods--Testing)

NOSOV, Yu. A.

PHASE I BOOK EXPLOITATION SOV/4026
SOV/11-M-117

Moscow. Aviatsionnyy institut imeni Sergo Ordzhonikidze

Issledovaniya v oblasti samoletnykh gidravlicheskikh ustroystv; sbornik statey (Research in the Field of Aircraft Hydraulic Devices; Collection of Articles) Moscow, Oborongiz, 1959. 101 p. (Series: Its: Trudy, vyp. 117) Errata slip inserted. 2,650 copies printed.

Sponsoring Agency: RSFSR. Ministerstvo vysshego i srednego spetsial'nogo obrazovaniya.

Ed.: Blandov, Candidate of Technical Sciences, Docent; Ed. of Publishing House: V. M. Tokar'; Tech. Ed.: V. P. Rozhin; Managing Ed.: A. S. Zaymovskaya, Engineer.

PURPOSE: This collection of articles is intended for scientific workers and engineers concerned with aircraft hydraulic devices. It may also be of use to students of advanced courses in related subjects.

COVERAGE: The articles in this collection present theoretical and experimental research on aircraft hydraulic devices. The following

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topics are discussed: design of fluid shock absorbers, influence of low temperature on the performance of rubber packings in hydraulic aggregates, statics and dynamics of hydraulic conduit volume regulation, and methods of determining viscosity of liquids containing diffused air. This monograph is the first to be published on a subject basis by the Department of Aircraft Equipment of MAI (Moscow Aviation Institute). The authors are young scientists of the Institute and industry. No personalities are mentioned. There are references at the end of each article.

TABLE OF CONTENTS:

AVAILABLE: Library of Congress

AC/RM/ec
7-27-60

SOV/138-59-4-10/26

AUTHORS: Nosov, Yu.A. and Farberova, I.I.

TITLE: Methods of Testing Rubber Intended for the Manufacture of Packings (Metod' otsenki rezinŷ, idushchey na izgotovleniye uplotnitel'nykh detaley)

PERIODICAL: Kauchuk i Rezina, 1959, Nr 4, pp 36-41 (USSR)

ABSTRACT: The main properties which require to be determined for rubbers intended for manufacture of packings, sealing rings, etc., are: dependence of elastic properties on temperature (both at elevated temperatures and sub-zero conditions); dependence of these properties on time, i.e. relaxation or creep; deterioration of general properties with time, i.e. ageing (both under normal conditions and when subjected to contact with liquids, oil etc.). The characteristic of special interest for packings is compression modulus. The most simple test is determination of relative permanent deformation in compression. This can be carried out by compressing the specimen in a clamp for a given time under the desired ambient conditions, or immersed in the appropriate fluid. Such a test, however, is performed at constant deformation and not at constant stress. Resistance to freezing is frequently determined by measuring the elastic

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Methods of Testing Rubber Intended for the Manufacture of Packings

recovery after compression - the specimen being compressed in a clamp while at room temperature and then "frozen". The recovery of dimension is measured on release of clamp pressure while the specimen is at the low temperature. The results can be expressed as a ratio of elastic radial forces (in a ring packing) at the test temperature, to those at room temperature. This ratio is plotted against temperature for two rubber rings in Figures 1 and 2. Ageing characteristics can be determined in the same way. Resistance to liquids can be determined by relative volume change on swelling (this is preferable to measurement of relative weight change). Formulae are given for calculating linear dimensional changes in cord rings from the volumetric swelling coefficient which is obtained simply from displacement when testing immersed specimens. There is a dearth of suitable methods for determination of wear resistance of packings. Standard wear tests are usually made on dry and highly abrasive surfaces and these

Methods of Testing Rubber Intended for the Manufacture of Packings

conditions are in no way comparable with the conditions under which rod or ring packings are usually required to operate. The American ASTM D-1081-49T test for permeability of rubber specimens while in a compressed state is described and is illustrated in Figure 3. An account is given also of the ASTM D 1147-53 T test for compressibility and recovery of hard rubber gasket materials. Tests on actual packing components, and in particular, on cord rings are described. Their indications are subject to variation with the dimensions of the part in question. The SAE 120R wear test is illustrated in Figure 4. In this test the rings are stretched by about 15% linearly over two shafts. The shafts are rotated at 1750 r.p.m. for a period of 24 hours, one shaft being driven by a motor. This is a comparative test, and aged rings, or rings subjected to immersion, can be compared with control specimens. Microhardness tests can be made on cord rings using a special "durometer" with an 0.4 mm spherical probe. The American ASTM and SAE tests are tabulated together with the Russian (TU) 1166-58 tests for rubber materials, and their 838-49 tests for actual packing components. This tabulation shows that a greater number of test methods are established

Methods of Testing Rubber Intended for the Manufacture of Packings

in the U.S.A. than in Russia. A test method developed by NIIRP for measuring modulus in radial compression on cord rings is illustrated in Figure 5. Strain gauges are applied to a thin-walled cylinder which is deflected by the piston on which the cord ring under test is mounted. This is a useful test for comparing aged and immersed rings against control specimens.
There are 5 figures, 1 table and 10 references, of which 5 are Soviet and 5 English.

26662
S/081/61/000/013/022/028
B117/B203

15.9300

AUTHORS: Degteva, T. G., Nosov, Yu. A., Lazarenko, Ya. F., Fedorova, V. G., Kuz'minskiy, A. S.

TITLE: Aging of rubber packings in oil

PERIODICAL: Referativnyy zhurnal. Khimiya, no. 13, 1961, 653, abstract 13П331 (Tr. N.-i. in-ta rezin. prom-sti, sb. 6, 1960, 69-83)

TEXT: The authors developed a quick method of estimating the service life of СКН-18 (SKN-18) packing rings in oil at ~20°C. Tests were made in special imitators simulating the packings of machines. Rubber rings originally compressed to 10-30% aged between 60 and 80°C. Deformation and radial compression were periodically measured. A contact pressure of 2.5 kg/cm^2 is sufficient to make the packing completely tight at 20°C. In this connection, ~100% of the permanent elongation (ε) is accumulated, and the stress nearly vanishes. After finding the kinetic curves for the accumulation of ε, the authors determined the apparent activation energy

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26662
S/081/61/000/013/022/028
B117/B203

Aging of rubber packings in oil

of aging and the service life of packings in joints at 25°C, the latter being about~10 years (considering the correction factor). The service life was practically calculated for £80%. For packings operating at -60°C, the critical value of the contact pressure required for a perfect seal rose from 7.5 up to 13 kg/cm^2. Leakiness is related with the loss in elastic properties of the rubber. [Abstracter's note: Complete translation.]

Card 2/2

PANICHEV, A.D.; KALASHNIKOV, A.P.; KUZ'MIN, Yu.S.; NOSOV, Yu.A.; DEMIDOV, G.K.

Setting of a continuous tread strip in extruding. Kauch. i rez. 20 no.8:40-44 Ag '61. (MIRA 14:8)

1. Yaroslavskiy tekhnologicheskiy institut i Yaroslavskiy shinnyy zavod.
(Tires, Rubber)

PANICHEV, A.D.; KALASHNIKOV, A.P.; KUZ'MIN, Yu.S.; DEMIDOV, G.K.; NOSOV, Yu.A.

Shrinkage of treads. Kauch. i rez. 20 no.12:48-49 D '61. (MIRA 15:1)

1. Yaroslavskiy tekhnologicheskiy institut i Yaroslavskiy shinnyy zavod.

(Yaroslavl—Tires, Rubber)

PHASE I BOOK EXPLOITATION SOV/6071

Nosov, Yuriy Andreyevich, Dmitriy Nikolayevich Popov, and Sergey Nikolayevich Rozhdestvenskiy

Nekotoryye voprosy rascheta i konstruirovaniya aviatsionnykh gidravlicheskikh sistem (Some Problems in the Design and Construction of Aircraft Hydraulic Systems). Moscow, Oborongiz, 1962. 231 p. Errata slip inserted. 3500 copies printed.

Ed. (Title page): S. N. Rozhdestvenskiy; Ed.: I. L. Yanovskiy, Engineer; Ed. of Publishing House: A. A. Khrustaleva; Tech. Ed.: L. A. Garnukhina; Managing Ed.: S. D. Krasil'nikov, Engineer.

PURPOSE: The book is intended for aircraft designers specializing in hydraulics. It can also be used by students of machine-building institutes.

COVERAGE: The book, based on non-Soviet sources, deals with the calculation

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Some Problems in the Design (Cont.)

and design of aircraft hydraulics. The dynamics and hydraulics of servodrives and the effect of high temperatures on their operation and sealing, are considered. No personalities are mentioned. There are 9 references: 1 Soviet (a translation from English) and 8 English.

TABLE OF CONTENTS [Abridged]:

SUBJECT: Aerospace

AD/dk/jk
11-7-62

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L 1549-66 EWT(d)/EWT(m)/EWP(w)/EPF(c)/EWA(d)/EWP(v)/T/EWP(t)/EWP(k)/EWP(h)/EWP(z)/
EWP(b)/EWP(1) MJW/BW/JD/DJ/GS

ACCESSION NR: AT5020436 UR/0000/65/000/000/0107/0113

AUTHORS: Raskin, Yu. Ye.; Gornets, L. V.; Nosov, Yu. A.

TITLE: Evaluation of lubricating properties of working fluids for aircraft hydraulic systems

SOURCE: AN SSSR. Nauchnyy sovet po treniyu i smazkam. Teoriya smazochnogo deystviya i novyye materialy (Theory of lubricating action and new materials). Moscow, Izd-vo Nauka, 1965, 107-113

TOPIC TAGS: lubricant, lubricant property, hydraulic fluid

ABSTRACT: The lubricating properties of 11 hydraulic fluids (No. 7; 7-30s; 7-40s-3; DS-18-1; AMG-10; AMG-10IT; AMG-10AIT; AMG-10SV; AMG-10S-2, and No. 2) were investigated on a four-ball friction machine (19 mm steel balls, HRC=60-62, 500 rpm of top ball) and on two axial-piston hydraulic pumps (at 210-220 kg/cm^2 and 2900-4000 rpm). The results are shown in Fig. 1 on the Enclosure. It was found that lubricants which have the same or better properties at 150C in the friction machine than AMG-10 at 100C worked well in the pumps, while the others were unsatisfactory. To determine the effects of load, sliding speed, materials of the friction junction, and gas used above the fluids in the accumulator,

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additional experiments were performed with AMG-10 and 7-50S-3. At a constant sliding speed of 23 cm/sec (AMG-10 at 100C, 7-50S-3 at 175C) and loads of 10, 20, 30 and 40 kg, for steel on steel (ShKh-9 steel balls, 60-62 HRC) and steel on bronze friction junctions (ShKh-9 steel on BRAZh-9/4 bronze), it was found that after 30 minutes the best performance was with steel on steel and AMG-10 lubricant in air (diameter of wear spot 0.45 mm at 10 kg, 0.6 mm at 40 kg, at 100C). In an N_2 atmosphere the wear was maximum with 7-50S-3 lubricant at 175C (1.28 mm at 40 kg as compared with 0.84 mm in air). For steel on bronze the wear increased smoothly with load for both lubricants with maximum wear for 7-50S-3 lubricant in N_2 (3.2 mm at 40 kg). Wear as a function of speed (AMG-10 at 100C, 7-50S-3 at 175C) was investigated at a constant load of 10 kg (time of experiment was adjusted to give same total number of ball revolutions). It was found that for AMG-10 (steel on steel) in air the wear remained almost constant with speed ($\approx$0.5 mm for 23-92 cm/sec) while for AMG-10 and 7-50S-3 (steel on steel) in N_2 the wear increased with speed (from 0.35 and 0.48 mm at 23 cm to 0.56 and 0.95 mm at 92 cm/sec respectively). For steel on bronze, wear remained almost constant for AMG-10 (in air and N_2) and 7-50S-3 (in air) and decreased for 7-50S-3 in N_2 (from 2.0 mm at 23 cm/sec). Orig. art. has: 5 figures and 5 tables.

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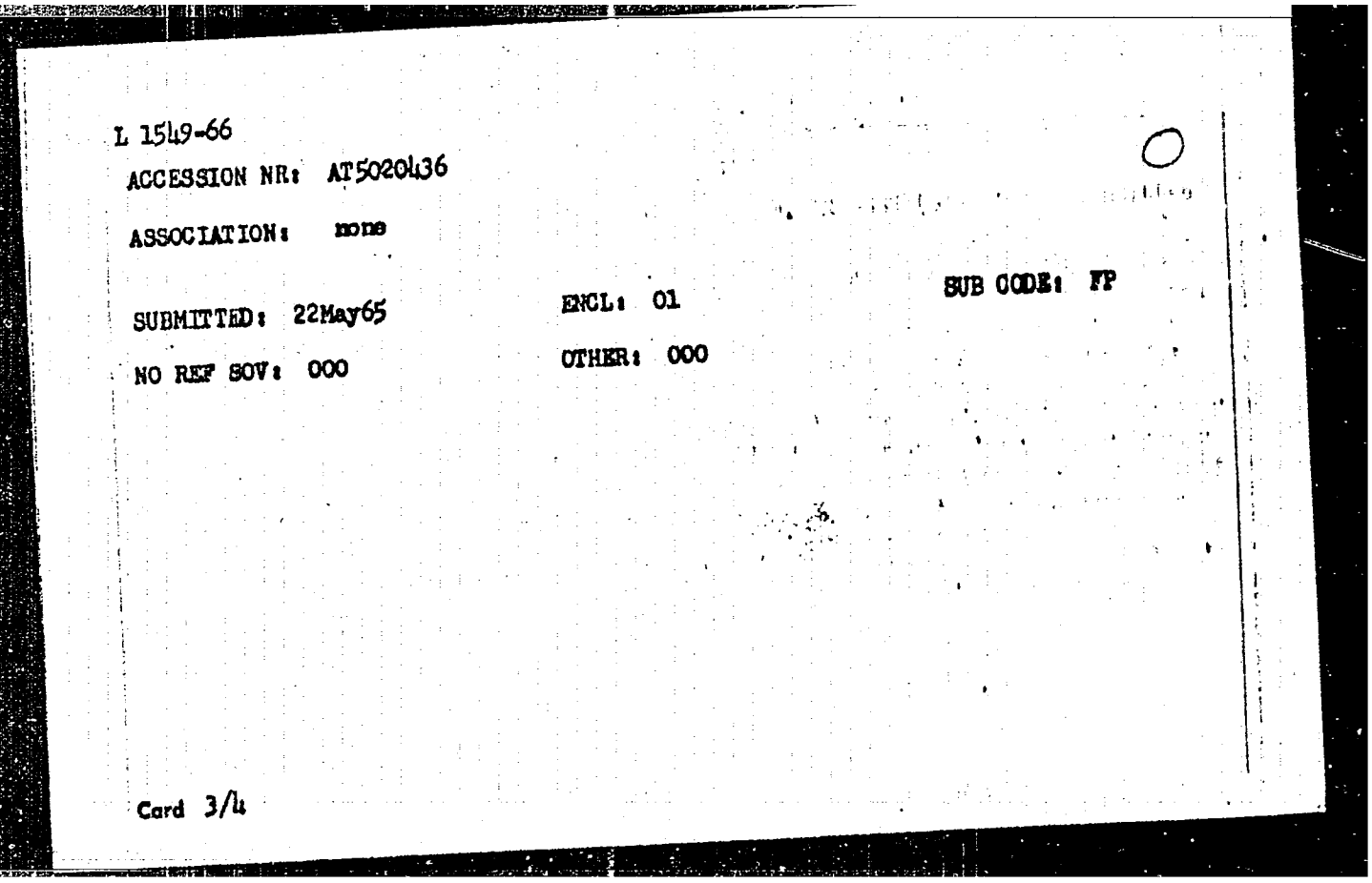

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ACCESSION NR: AT5020436

ASSOCIATION: none

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NO REF SOV: 000 OTHER: 000

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ACCESSION NR: AT5020436

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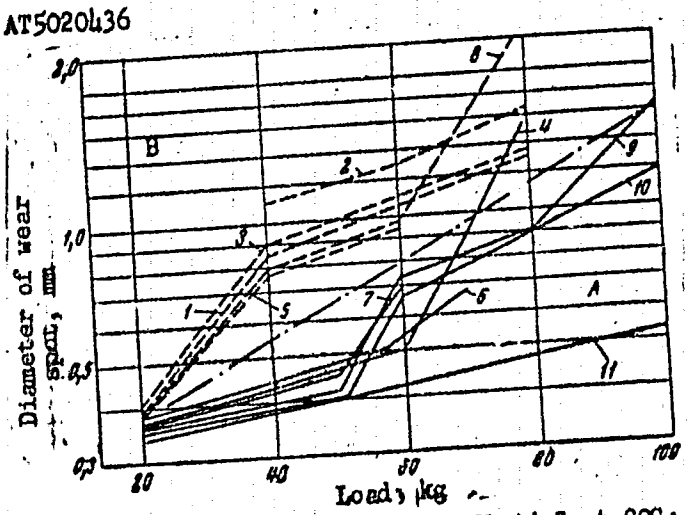

Fig. 1. Wear spot diameter vs axial load: 1- fluid 7 at 20C; 2- at 200C; 3- 7-30S at 150C; 4- organic ester at 150; 5- 7-40S-3 at 150; 6- 7-50S-3 at 150; 7- 50S-3 at 175C; 8- DS-18-1 at 200; 9- AMG-10 at 100; 10- general curve of 5 fluids AMG-10SV, AMG-10S-2, AMG-10S-3, AMG-10AIT and AMG-10IT at 150C; 11- fluid 2 at 125C; A- zone of satisfactory pump operation; B- unsatisfactory operation

Card 4/4

DURMAN, L.I.; NOSOV, Yu.G.

Theory of charged particle scattering by cosmic magnetic fields of simplest type. Geomag. i aer. 5 no.1:155-159 Ja-F '65. (MIRA 18:4)

1. Polyarnyy geofizicheskiy institut, Kol'skiy filial AN SSSR.

BIRYUKOV, V.V.; KAFAROV, V.V.; Prinimali uchastiye: NOSOV, Yu.I.; DORFMAN, A.D.

Mathematical modeling of vapor-liquid heat exchangers. Khim.prom. no.12:908-914 D '63. (MIRA 17:3)

BOBKOV, Vasiliy Ivanovich; POCHUYEV, Yuriy Grigor'yevich; BUROV, Georgiy Georgiyevich; BELOV, Nikolay Pavlovich; MOSOV, Yuriy Pavlovich; SEROV, Vyacheslav Alekseyevich; BARANOVSKIY, F.I., otv. red.; KOVAL', I.V., red. izd-va; IL'INSKAYA, G.M., tekhn. red.

[OMKT mechanized stoping unit] Ochistnoi mekhanizirovannyi kompleks OMKT; rukovodstvo po ekspluatatsii i remontu. Moskva, Gosgortekhizdat, 1963. 242 p. (MIRA 16:8)
(Stoping (Mining))--Equipment and supplies)

SOV/108-13-2-4/15

AUTHORS: Nosov, Yu. R., Khazanov, B. I., Regular Member of the Society

TITLE: Temperature Stabilization of Triode-Transistor Voltage Amplifiers (Temperaturnaya stabilizatsiya usiliteley napryazheniya na poluprovodnikovykh triodakh)

PERIODICAL: Radiotekhnika, 1958, Vol. 13, Nr 2, pp. 28 - 35 (USSR)
Received: April 25, 1958

ABSTRACT: Here the stability condition for the amplification coefficient in the scheme with a grounded emitter is determined for temperature modification, and the influence of the scheme parameters and the triode parameters themselves on the satisfaction of this condition is shown. The theory described here is applicable for the calculation of a scheme with silicon as well as germanium triodes. By voltage amplifiers in the case of semiconductor triodes those cascades are meant, the signal of which comes from the low-resistance transmitter ($R_{gen} \ll R_{input}$). From the derived formula (7) it can be seen that the amplification coefficient is constant when the numerator in (7) is equal to zero. This demand means that the

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stability of the amplification coefficient cannot be obtained by stabilizing the emitter current, as a number of authors (Reference 4) are maintaining, but by a certain modification of its temperature. It is shown that for the thermostabilization of the voltage amplification in semiconductor triodes the relative increase of the absolute temperature and that of the emitter current must be equal to each other: $\Delta I_E/I_E = \Delta T/T$. In those cases, in which no special measures for the stabilization of the scheme were taken, the relative modification of the emitter current will in general remarkably exceed the temperature modification causing it. Therefore when rising the constant emitter current component I_E, the drift of the amplification coefficient will remarkably decrease as ΔI_E - as is demonstrated here - does not depend on the I_E-value. Now the dependence of the emitter current I_E and the collector current I_c of the triode on the scheme parameters and on the parameters of the triode and the modifiaction of these currents ΔI_E and ΔI_c in a temperature modification is found. The results differ from those obtained

Temperature Stabilization of Triode-Transistor Voltage Amplifiers

by Shea (Reference 1). In Shea's formula for ΔI_c the second term $\Delta I_c''$ of the sum is lacking, which is very important to consider, as I_c' and I_c'' are depending on the value $R_{equivalent}$ inversely. It can be seen from the experimental data given here that dU_{EB}/dT in the range of working temperatures does practically not depend on the temperature and that for germanium as well as for silicon it equals $\eta = -0{,}002$ V/degree. U_{EB} is the voltage applied between the emitter- and the basis-terminals. The results theoretically obtained entirely harmonized with those of the experiment. For the temperature stabilization of the amplifier the emitter current has to modify at the expense of a displacement of the volt-ampere characteristic. The influence of the modification of the I_{co}-current has to be reduced to a minimum. For this purpose a low-resistance divider must be chosen in the basis circle. There are 2 tables, and 7 references, 4 of which

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Nosov, Yu. R.

10 июня

(с 18 до 22 часов)

[illegible]

[illegible]

[illegible]

[illegible]

Ю. Р. Носов,
[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

Шумы в полупроводниковых [illegible]

11 июня

(с 10 до 16 часов)

[illegible]

[illegible]

[illegible]

[illegible]

А. Ю. [illegible]

[illegible]

[illegible]

[illegible]

11 июня

(с 18 до 22 часов)

Ю. [illegible],
[illegible],
С. [illegible]

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[illegible]

[illegible]

Report submitted for the Centennial Meeting of the Scientific Technological Society of Radio Engineering and Electrical Communications im. A. S. Popov ([illegible]), Moscow, 8-12 June. 1959

AUTHOR: Nosov, Yu. R.

SOV/119-59-9-5/19

TITLE: The Application of the Breakdown Branch of the Current-voltage Characteristic of Semiconductor Diodes for the Raising of the Quick Response of Pulse Circuits

PERIODICAL: Priborostroyeniye, 1959, Nr 9, pp 14-15 (USSR)

ABSTRACT: The construction of pulse circuits on the basis of transistors does generally not require diodes with high operating voltage $U_{operation}$ or extremely low inverse currents I_{inv}. Diodes used in quickly responding pulse circuits have above all to meet the following requirements: 1) low direct resistance R_{dir}, 2) High rate of junction processes. The point-shaped diodes of various types and modifications largely fullfil the second condition, but the high values of R_{dir} and the weak direct currents permissable are essential disadvantages of these diodes. For this reason growing interest is taken in the possible use of planar diodes (having extremely low R_{dir}) in pulsing circuits with quick response. The shape of the junction characteristic of a planar diode is determined by 2 factors: 1) by the electrostatic

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capacitance C of the P-N junction, and 2) by the "recovery time" t_r, which is determined by the following facts: On transmitting the direct current through the diode minority carriers are accumulated within the volume of the semiconductor, thus causing a delay in the flow of the inverse current when the polarity of the voltage at the diode is suddenly changed. t_r for planar diodes amounts to 10^{-6} sec and over. Besides, t_r depends considerably on the use the diode is put to inside the circuit. However, the producers and not the constructors of the diode are mainly responsible for a radical reduction in t_r.

The response of pulsing circuits can greatly be accelerated by applying silicon stabilitrons, planar diodes which have already been developed and are produced industrially. In the region before breakdown the diode works as before, solely changing its polarity. The proposed inversion of the diode produces no marked change in the form of its volt-amperes diagram. Physically, however, the transmission of the strong current in the branch

corresponding to the breakdown presents a picture essentially different from that in the direct branch. If a direct displacement is applied to the P-N junction, an injection of minority carriers into the region of the diode base ensues. The concentration of the current carriers introduced thereby is all the greater, the higher the concentration of the direct current is. The principal difference between direct branch and the breakdown region is given by the fact, that in the former case the current is related to the movement of the minority carriers, whereas in the latter case it is related to the movement of the majority carriers. Thus, minority carriers are not accumulated in the breakdown region during operation. Theoretical calculation for the time required for an avalanche breakdown gave 10^{-9} to 10^{-10} sec. An experimental estimation of this time

The Application of the Breakdown Branch of the Current-voltage Characteristic of Semiconductor Diodes for the Raising of the Quick Response of Pulse Circuits

gave less than 2.10^{-8} sec. The reverse switching of the silicon stabilitron enabled the production of diodes having a low resistance in the conducting direction, and a high rate of junction processes. The third figure gives an example of elementary pulsing circuits containing silicon stabilitrons.

Nosov, Yu. K

PHASE I BOOK EXPLOITATION SOV/4034

Poluprovodnikovyye pribory i ikh primeneniye; sbornik statey, vyp. 4. (Semiconductor Devices and Their Application; Collection of Articles, No. 4) Moscow, Izd-vo "Sovetskoye radio," 1960. 421 p. Errata slip inserted. No. of copies printed not given.

Ed. (Title page): Ya. A. Fedotov; Ed. (Inside book): I. M. Volkova; Tech. Ed.: A. A. Sveshnikov; Editorial Board: Ya. A. Fedotov (Resp. Ed.), N. A. Barkanov, I. G. Bergel'son, A. M. Broyde, Ye. I. Gal'perin (Deputy Resp. Ed.), Yu. A. Kamenetskiy, S. F. Kausov, A. V. Krasilov, A. A. Kulikovskiy, I. F. Nikolayevskiy, N. A. Penin, and I. P. Stepanenko.

PURPOSE: This collection of articles is for technicians and scientists working in the field of semiconductors.

COVERAGE: These articles cover the following problems: physical processes occurring in semiconductor diodes and transistors; transistor parameters, and methods and instruments for measuring them; special features of transistor operation in amplifying and oscillating circuits; and circuits and systems utilizing transistors. Several articles mention personalities. References accompany most articles.

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TABLE OF CONTENTS:

NOSOV, Yu.R.

Characteristics of transistor diodes used in computer engineering. Vop. rasch. i konstr. elektron. vych. mash. no.1:185-195 '60. (MIRA 14:1)

(Transistors) (Electronic calculating machines)

MOSOV, Yu.R.

Semiconductor source of standard (reference) voltage. Izm.tekh. no.3: 17-18 Mr '60. (MIRA 13:6)
(Voltage regulators)

.9.2520

7(6)45
SOV/109-15-3-8/17

AUTHOR: Nosov, Yu. R., Khakanov, B. I.

TITLE: Equation of Thermal Stability of Various Types of Transistor Voltage Amplifiers

PERIODICAL: Radiotekhnika, 1960, Vol 15, Nr 3, pp 38-44 (USSR)

ABSTRACT: The paper derives the equation of thermal stability for a transistor voltage amplifier whose circuit diagram is shown in Fig. 1.

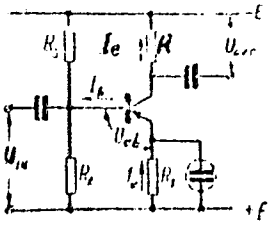

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Fig. 1.

Under the assumption that $R_1 \ll r_e$ within the entire interval of possible temperature changes, it is shown that the condition for thermal stability of the above amplifier may be written as:

$$\frac{\Delta I_k}{I_e} \cdot \frac{\Delta T}{T}(1+\gamma\varkappa) - \frac{\Delta\beta}{\beta}\left(\frac{1+\varkappa}{\beta}+\varkappa\right). \qquad (9)$$

where γ is a coefficient depending on the transistor type, and is related to the mobility μ of the charge carriers in the manner:

$$\mu \sim T^{-\gamma}, \qquad (5)$$

In Eq. (9), $\varkappa = r'_{bo}/r_e$, where

$$r_e = \frac{n\kappa T}{qI_e}; \quad r'_{bo} = r_{bo}(1-\alpha).$$

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Here, r_{bo} is the part of base resistance which does not depend on emitter current I_e. It is stated that in most practical problems the term with $\Delta\beta$ may be neglected. However, in the case of a silicon transistor this term must be taken into account. Based on Eq. (9), the cases $\varkappa \ll 1$ and $\varkappa \gg 1$ are discussed. An equation of thermal stability for computation purposes is obtained for germanium transistors and may be applied to various types of Soviet transistors. From the obtained results, the following conclusions are drawn: (1) In the case of small emitter currents, thermal stability is assured by changes in emitter currents, these being related to temperature in a simple manner. (2) In the case of large emitter currents, thermal stabilization is possible only for high values of α and for small r_b. (3) In the case of silicon transistors, there is a lower limit for permissible I_e values.

(4) Thermal stabilization at a constant I_e is possible

only in the case of silicon transistors. Thus a d-c voltage amplifier may be designed using silicon transistors only. There are 2 figures; 2 tables; and 6 references, 1 Soviet, 5 U.S. The U.S. references are: M. Lin, E. Crosby, IRE Nat. Conv. Rec., Nr 3, 22, 1957; M. Tanenbaum, D. E. Thomas, BSTJ, XXXV, 1, 1956; Chin-Tang Sah, R. Noyce, W. Shockley, PIRE, 45, 1228, 1957; F. I. Morin, I. P. Maita, Phys. Rev., 96, 29, 1954; M. Prince, Phys. Rev., 92, 681, 1953.

SUBMITTED: April 3, 1959

NOSOV, Yu.R.

Transient processes in transistor diodes in connection with short direct-current pulses. Radiotekh. i elektron. 6 no.2:313-320 F '61. (MIRA 14:2)

(Diodes)