

The Mechanization of Earthwork in Frozen Soil

95-11-11/14

and eventually the wedge begins to jar and to jolt, this destroying the structure of the soil. The winch of the tractor is then operated, the wedge is pulled out from the soil by means of a wire rope, and is again driven into the soil at a distance of 400 to 500 m from the first place. The earth destroyed by the wedge is then removed by means of an excavator. The type of equipment which entails suspending the Dieselhammer on the excavator will be worth while only if it is possible, after driving the wedge into the ground, to tear away the clot of earth by means of pressure. The ridge plow used for hard-frozen soils is a suspended system of the type of a bucket conveyer excavator. (Fig. 2). This machine is able to deal with 30 - 40 m in one working operation and at a freezing depth of 0,8 - 1,0 m. Wide use is at present being made of wedge-rammers and ball-rammers, which are dropped from the jib crane of the excavator. Wedge- and ball-rammers are of greater efficiency the weight of which amounts to 1500 kg. The ball-rammer (see fig. 4) is intended only for the destruction of sandy soil and sandy ground, whereas the wedge-rammer should be used for loam- and loamy soil. The use of the suspension system, however, causes considerable wear within a short time. Actually, this method is less effective than the application of a Dieselhammer on a tractor or a tractor loader which, with a falling weight of 600 and 1200 kg respectively may be recommended for work of

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The Mechanization of ~~Earthwork~~ in Frozen Soil

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smaller volume and for the cutting of trenches - machines
with chain cutters- . There are 5 figures.

AVAILABLE: Library of Congress

Card 3/3

VEKSMAN, A.M., inzh.; GAL'PERIN, M.I., kand.tekhn.nauk.

"Complete mechanization of earthwork in constructing industrial buildings of machine-building plants" and "Complete mechanization of earthwork in constructing large single-story industrial buildings" by [inzhener Instituta tekhniko-ekonomicheskoy informatsii AN SSSR, Moskva] L.S. Lifshits. Reviewed by A.M. Veksman, M.I. Gal'perin. Nov.tekh. i pered. op. v stroi. 19 no.6:32-33 Je '57. (MIRA 10:10)
(Industrial buildings) (Earthwork)
(Lifshits, L.S.)

ABERGAUZ, V.D.; GAL'PERIN, M.I.; BESSER, Ya.R., kand.tekhn.nauk,
nauchnyy red.; KRYUGER, Yu.V., red.izd-va; MEL'NICHENKO, F.P.,
tekhn.red.

[Using vibrators in building] Vibrator na stroike. Izd.2-e,
perer. i dop. Moskva, Gos.izd-vo lit-ry po stroit., arkhit. i
stroit.materialam, 1958. 79 p. (MIRA 13:3)
(Vibrators)

GAL'PERIN, M.I., kand. tekhn. nauk.

Destroying rocks by vibration cutting. Stroi. pred. neft. prom.
3 no.3:13-16 Mr '58. (MIRA 11:6)

(Rock drills)

GAL'PERIN, M.I.

116-98-1-17/23

AUTHORS: Gandel'sman, V.B., and Gal'perin, M.I. Engineers

TITLE: Machines for the Extraction of Natural Wall and Lining Stones
(Mashiny dlya dobychi yestestvennogo stenovogo i oblitso-vochnogo kamnya)

PERIODICAL: Mekhanizatsiya Trudoyemkikh i Tyazhlykh rabot, 1958, Nr 4, pp 37-40 (USSR)

ABSTRACT: The authors give a detailed description of various stone cutting and stone moving machines produced by the Moskovskiy zavod "Strommashina" (Moscow "Strommashina" Plant). In 1956 the USSR produced 3,600,000 cubic meters of natural wall stone, or 1.5 billion standard bricks. By 1960, stone production is supposed to reach 15,250,000 cubic meters. The following Soviet inventors have played an important role in developing stone cutting machinery: Petrik, Zil'berglit, Stolyarov, Galanin, Zastupaylo, Chegodayev, the brothers Zhuchenkov and others. There are 5 figures.

AVAILABLE: Library of Congress

Card 1/1

1. Stone cutting machines
2. Construction-Equipment
3. Quarries-Equipment

GAL'PERIN, M.I., inzh.

At the permanent All-Union Building Exhibition. Nov. tekhn. 1pered.
op. v stroi. 20 no.6:19-23 Je '58. (MIRA 11:6)
(Moscow--Building machinery--Exhibitions)

GAL'PERIN, M.I., doktor tekhn.nauk.; NIKOLAYEV, B.A., inzh.

Machines for destructing frozen grounds. Nov. tekhn. 1 pered. op.
v stroi. 20 no.9:11-14 S '58. (MIRA 11:10)
(Frozen ground) (Earthwork--Cold weather conditions)

GAL'PERIN, Mark Isayevich; ABEZGAUZ, Viktor Davidovich; MAMUROVSKIY,
A.A., retsenzent; NIKITIN, A.G., inzh., red.; CHERNOVA, Z.I.,
tekh.n.red.; UVAROVA, A.F., tekhn.red.

[Stonecutting machines] Mashiny dlia rezaniia kamnia. Moskva,
Gos.nauchno-tekh.n.izd-vo mashinostorit.lit-ry, 1959. 283 p.
(MIRA 12:12)

1. Chlen-korrespondent Akademii stroitel'stva i arkhitektury (for
Mamurovskiy).

(Stonecutting)

SOV/113-59-3-12/22

28(1), 25(5)

AUTHOR: Gal'perin, M.I., and Gandel'sman, B.V., Engineers

TITLE: A Method Increasing the Productivity of Stone Cutting Machines (Puti povysheniya proizvoditel'nosti kamne-reznykh mashin)

PERIODICAL: Mekhanizatsiya i avtomatizatsiya proizvodstva, 1959, Nr 3, pp 36-38 (USSR)

ABSTRACT: The authors state that more than a thousand stone cutting machines are actually in use at various quarries. In 1958, 3.6 billion wall stones were produced, which represents 9.6% of the whole production of wall-building material. In 1959 this production will increase to 11 billion units, representing 13.3% of the whole production of wall-building materials. In order to ensure this development, it is absolutely necessary to raise the standards of mechanization in the quarries. Experience shows, that the best work is performed by high-bench machines, its basic advantage being the 13-15 saws, working simultaneously. The authors analyze the geometrical forms of

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SOV/118-59-2-12/22

A Method Increasing the Productivity of Stone Cutting Machines

the saw teeth, the quality of the material the instruments are made from, and conclude that it is absolutely necessary for the enterprises to redesign their stone-cutting machines and improve their quality, and for factories producing disc-saws to improve their design and use spade shape teeth and a negative front angle. Furthermore, new machines for stone transportation and removal of cuttings should be manufactured according to new principles. There are 2 graphs and 1 table.

Card 2/2

GAL'PERIN, M.I., doktor tekhn. nauk; GANDEL'SMAN, V.B., inzh.

Cutting tools and operations of stonecutting machinery. Stroi. mat.
5 no.4:16-19 Ap '59. (MIRA 12:6)
(Stonecutting--Equipment and supplies)

(

307/132-59-7-16/17

AUTHOR: Gal'perin, M.I.

TITLE: On the Book "Exploratory Drilling" by B.S. Vozdvizhen-
skiy, S.A. Volkov, B.S. Filatov, N.I. Lyubimov and
I.A. Trusov

PERIODICAL: Razvedka i okhrana nedr, 1959, Nr 7, pp 63-64 (USSR)

ABSTRACT: This is a review of the above mentioned book.

Card 1/1

GAL'PERIN, M. I., doktor tekhn.nauk

"Building and assembling cranes; a textbook. No.1. Truck-mounted cranes and cranes with pneumatic tires." Reviewed by M.I.Gal'perin. Mont.i spets.rab.v stroi. 22 no.9:3 of cover S '60. (MIRA 13:8)
(Cranes, derricks, etc.)

GAL'PERIN, Mark Isayevich, doktor tekhn. nauk; LEVCHENKO, Ya.V., red.;
SHILLING, V.A., red.isd-va; BELOGUROVA, I.A., tekhn. red.

[Mechanical means for breaking up frozen soils] Mekhanicheskie sposoby
rasrusheniia merslykh gruntov; kratkaia stenogramma lektsii. Lenin-
grad, 1961. 33 p. (MIRA 14:7)
(Frozen ground) (Earthmoving machinery)

GAL'NERI, N.I., doktor tekhn.nauk; IBVILIN, M.G., inzh.

Study of the operation of blades on stone-cutting machines.
Stroi. i dor. mash. 6 no.9:33-34 S '61. (MIRA 14:10)
(Stonecutting)

ABEZGAUZ, V.D., kand.tekhn.nauk; GAL'PERIN, I.I., doktor tekhn.nauk

Problems of developing and utilizing machines for working
frozen ground. Stroi. i dor. mash. 6 no.10:13-20 0 '61.

(MIRA 14:16)

(Earthmoving machinery)

(Frozen ground)

LEYKIN, M.G., inzh.; GAL'PERIN, M.I.; doktor tekhn.nauk

Modernization of circular saws on the SM-89A and SM-518 stone-
cutting machines. Stroi. mat. 7 no.3:33-34 Mr. '61. (MIRA 14:4)
(Stonecutting)

NIKOLAYEV, B.A., inzh.; GAL'PERIN, M.I., doktor tekhn.nauk

Using machinery in working frozen ground. Transp. stroi. ll no.1:
54-55 Ja '61. (MIRA 14:1)
(Frozen ground) (Earthmoving machinery)

GAL'PERIN, M.I., doktor tekhn.nauk

"Manufacturing and installing pipelines; Collection of articles."
Reviewed by M.I. Gal'perin. Mont. i spets. rab. v stroi. 23
no. 2:31-32 F '61. (MIRA 14:1)

(Pipelines)

DOMBROVSKIY, N. G., prof., doktor tekhn. nauk; GAL'PERIN, M. I.,
doktor tekhn. nauk

Breaking of hard and frozen ground. Sbor. trud. MISI no.39:
50-54 '61. (MIRA 16:4)

1. Nauchno-issledovatel'skiy institut Ministerstva stroitel'-
stva RSFSR. 2. Chlen-korrespondent Akademii stroitel'stva i
arkhitektury SSSR (for Dombrovskiy).

(Excavation)

GAL'PERIN, M.I., doktor tekhn.nauk; SATOVSKIY, B.I.

"Bucket excavators" by N.G. Dombrovskii, S.A. Pankratov. Reviewed
by M.I. Gal'perin, B.I. Satovskii. Mekh. i avtom.proizv. 16 no.1:
57 Ja '62. (MIRA 15:1)

1. Glavnyy konstruktor Uralmashzavoda po ekskavatorostroyeniyu
(for Satovskiy).

(Excavating machinery)
(Dombrovskii, N.G.) (Pankratov, S.A.)

ABEZGAUZ, V.D., kand. tekhn. nauk; GAL'PERIN, M.I., prof., doktor
tekhn. nauk; VROMSKIY, L.N., ved. red.; BASIMAKOV, G.M.,
tekhn. red.

[Working frozen ground in mechanized trench digging] Razra-
botka merzlykh gruntov pri mekhanizirovannom ryt'e transhei.
Moskva, Gostoptekhzdat, 1962. 93 p. (MIRA 15:11)
(Frozen ground) (Excavating machinery)

GAL'PERIN, M.I., doktor tekhn.nauk

"Rigging operations in the erection of equipment of oil refineries"
by [inzh.] Z.B. Kharas. Reviewed by M.I. Gal'perin. Mont. i spets.
rab. v stroi. 24 no.4:31-32 Ap '62. (MIRA 15:7)
(Hoisting machinery—Rigging) (Petroleum refineries)
(Kharas, Z.B.)

NIKOLAYEV, B.A., inzh.; GAL'PERIN, M.I., doktor tekhn.nauk

Breaking down frozen ground by chipping it away. Stroi.truboprov.
7 no.9:12-14 S '62. (MIRA 15:11)

(Frozen ground)

GAL'PERIN, M.I., doktor tekhn.nauk

"Construction equipment" by N.M. Petrov. Reviewed by M.I.
Gal'perin. Stroi. i dor. mash. 7 no.9:38-39 S '62. (MIRA 15:10)
(Construction equipment)
(Petrov, N.M.)

GAL'PERIN, M. I., doktor tekhn. nauk; NIKOLAYEV, B. A., inzh.

Study of the breaking down of frozen ground by wedges. Stroi.
i dor. mash. 7 no.11:27-28 N '62. (MIRA 16:1)

(Frozen ground)

GAL'PERIN, M.I., doktor tekhn. nauk; LEYKIN, M.G., inzh.

Power indices of the work of cutters on stonecutting machinery.
Mekh. stroi. 18 no.11:11-12 N '61. (MIRA 16:7)

(Inkerman—Stonecutting)

ZEN'KOV, I.S., prof.; PETROV, N.M.; KOTOVICH, B.M., dots.;
GAL'PERIN, M.I., doktor tekhn. nauk; ZEN'KOV, I.S.,
prof., red.; TITOVA, B.V., red.

[Main trends in the mechanization and automation of
the construction industry; introductory lecture for
students in the construction and mechanics courses
of the All-Union Engineering and Construction Cor-
respondence Institute] Osnovnye napravleniia v mekha-
nizatsii i avtomatizatsii stroitel'stva; vvodnaia
leksiiia dlia studentov stroitel'nykh i mekhanicheskikh
spetsial'nostei VZISI, 1961. 23 p. (MIRA 17:9)

1. Moscow. Vsesoyuznyy zaochnyy inzhenerno-stroitel'nyy
institut.

АБРАМОВ, Виктор Иванович; ул. Ш. 10, парк Измайлов, Москва,
А.А., научн. ред.

[Vibrators at construction sites] Vibrator na stroike. Inzh.
perer. Moskva, Stroizdat, 1964. 94 p. (MIRA 1964)

L 30783-66 EWP(k)/EWT(d)/EWT(m)/EWP(h)/T-2/EWP(1)/EWP(w)/EWP(v) IJP(c) EM

ACC NR: AP6022100

SOURCE CODE: UR/0114/66/000/002/0045/0045

AUTHOR: Gal'porin, M. I. (Engineer); Chekulayev, A. V. (Engineer)

52
B

ORG: none

TITLE: Transport by water of odd-shaped, heavy working rotors of powerful radial-axial hydroturbines

SOURCE: Energomashinostroyeniye, no. 2, 1966, 45

TOPIC TAGS: inland waterway transportation, transportation equipment, crane, turbine rotor

ABSTRACT: The experience of shipping two large, heavy turbine rotors from Leningrad to Krasnoyarsk on the Yenisey River showed that the loading, shipping and unloading presented no insurmountable problems. The material was loaded at Leningrad with a 350-ton crane, and shipped during July and early August to the destination. The greatest problems were created by locks on the Belomorsk-Baltic canal which were too small to admit the transport barge plus tugs, requiring the barge to be pushed into the locks with usage of only one tug. The methods used to fasten the heavy rotors down in the barge proved satisfactory, even under storm conditions. [JPRS]

SUB CODE: 13 / SUM DATE: none / ORIG REF: 001

Card 1/1 JS

UDC: 621.224.004.3(047)

L 29132-66

ACC NR: AP6018689

SOURCE CODE: UR/0114/65/000/003/0032/0034

AUTHOR: Bronovskiy, G. A. (Engineer); Gal'perin, M. I. (Engineer)

38
B

ORG: none

TITLE: Some aspects of the production of turbines for the Krasnoyarskaya Hydroelectric Station

SOURCE: Energomashinostroyeniye, no. 3, 1965, 32-34

TOPIC TAGS: hydroelectric power plant, metal casting, welding, turbine

ABSTRACT: The construction of the world's first 508 thousand kilowatt turbines raised numerous new problems. The authors list and describe in detail basic peculiarities of the construction process. The Novo-Kramatorsk Machine Factory had to develop new procedures for casting the 36.8 t half-sections of the outer rim, exceeding in size those made for the Bratskaya hydroelectric station. Special methods have been developed also for the casting of the 8,000 kg vanes by the joint effort of the Central Scientific-Research Institute for Technical Machine-building, the Nevskiy Machine-Building Factory im. V. I. Lenin, and the Leningrad Metallurgical Factory im. XXII Congress of the CPSU. The Novo-Kramatorsk Machine Factory had to solve the problems of producing the extremely large shaft (2300/1900 mm in diameter) with a comparatively thin wall of the shaft (200 mm). Further problems were

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UDC: 621.224:65.011.56

L 29132-66

ACC NR: AP6018689

encountered in connection with welding, need for new stronger materials, and transportation. New welding methods were designed and tested by the Institute for Welding im E. O. Paton; parts were made of three types of steel, while the working wheels of the new turbine had to be transported by ship rather than by rail. The article is packed with technical data and descriptions of new technological and engineering solutions, down to a description of the loading of the wheel on the ship and its voyage along the Northern route. Orig. art. has: 4 figures. [JPRS]

SUB CODE: 13, 10 / SUBM DATE: none / ORIG REF: 003

Card 2/2 AC

GAL'PERN, M.L., inzh.

Concerning the principal schematics of electric substations. Elek.
sta. 32 no.8:54-55 Ag '61. (MIRA 14:10)
(Electric substations)

GAL'PERIN, M.M.; ANTIPOV, L.R.

We should set up mass production of uniform floor-type hand trucks. Tekst.prom.15 no.7:28-30 J1'55. (MLRA 8:10)
(Hand trucks)

118-58-4-12/23

SAL'PERIN, P. M.
AUTHORS: Shakh-Nazaryan, A.S., Antipov, P.A., Gal'perin, E.M.
Engineers

TITLE: The Mechanization of Secondary Auxiliary Operations in Textile Enterprises (Mekhanizatsiya podsobno-vspomogatel'nykh rabot na tekstil'nykh predpriyatiyakh)

PERIODICAL: Mekhanizatsiya Trudoyemkikh i Tyazhelykh Rabot, 1958, Nr 4, pp 31-32 (USSR)

ABSTRACT: This article criticizes the lack of mechanization of internal transport in the textile industry. A study of this matter was conducted by the Tsentral'nyy nauchno-issledovatel'skiy institut khlopchatobumazhnoy promyshlennosti (The Central Scientific Research Institute of the Cotton Industry). There are 2 figures.

AVAILABLE: Library of Congress
Card 1/1

1. Textiles-Transportation 2. Textiles-Production

GAL'PERIN, M.M., inzh.; ANTIPOV, L.R., inzh..

Efficient methods of transporting yarn. Tekst. prom. 18 no.6:29-32
Je '58.

(Yarn) (Conveying machinery)

(MIRA 11:7)

ANTIPOV, Lev Romanovich, inzh.; GAL'PERIN, Mikhail Moiseyevich,
inzh.; KLEYNERMAN, Zinoviy Izrailovich, inzh.; CHUGREYEVA,
V.N., red.; VINOGRADOVA, G.A., tekhn. red.

[Mechanization of intrafactory transportation in the spinning
factories of the cotton industry] Mekhanizatsiia vnutrifab-
richnogo transporta na priadil'nykh fabrikakh khlopchato-
bumazhnoi promyshlennosti. Moskva, Gizlegprom, 1963. 226 p.
(MIRA 17:2)

AVAYEV, Sergey Aleksandrovich; GAL'PERIN, Mikhail Moiseyevich;
KRYLOV A.P., rezensent; DUVANIN, N.I., rezensent;
AGADZHANOVA, I.A., red.

[Fundamentals of mechanization and automation in the
textile industry] Osnovy mekhanizatsii i avtomatizatsii
proizvodstva v tekstil'noi promyshlennosti. Moskva, Izd-
vo "Legkaia industriia," 1964. 245 p. (MIRA 18:1)

SADOV, F.I., doktor tekhn. nauk, prof.; CHAPLINA, N.D.; IVLIYEV, V.G.; LUR'YE, A.L.; ABEZGUZ, A.Ya.; DYNIN, P.M.; ESKIN, I.L.; VASIL'YEV, G.V.; GAL'PERIN, M.M., retsenzent; IL'INSKIY, N.S., retsenzent; MORYGANOV, P.V., doktor tekhn. nauk, prof., retsenzent; MOSHKIN, V.I., retsenzent; RUDAKOV, D.N., retsenzent; TSVETKOV, M.N., retsenzent; DUKHOVNIY, F.N., red.

[Design and planning of finishing factories for the cotton industry] Proektirovanie otdelochnykh fabrik khlopchatobumazhnoi promyshlennosti. Moskva, Lagkaia industriia, 1965. 355 p. (MIRA 18:7)

GAL'PERIN, M.M.

Mechanization of the conveying of weaver's beams and of their installation on looms. Tekst. prom. 25 no.9:5-12 S '65.

(MIRA 18:10)

1. Zamestitel' nachal'nika otдела po mekhanizatsii transporta Gosudarstvennogo proyektного instituta No.1 po proyektirovaniyu predpriyatiy po tekstil'nyh otraslyam promyshlennosti.

MIKHAYLOV, N.V., doktor tekhnicheskikh nauk; GAL'PERIN, M.P., kandidat tekhnicheskikh nauk.

Useful book ("Using reinforced concrete sections in people's democracies" by N.M.Kurek and M.V. Ostrovskii. Reviewed by N.V. Mikhailov, M.P. Gal'perin). Stroi.pred.neft.prom. 1 no.8; 31 0 '56. (MLRA 9:12)

(Europe, Eastern--Reinforced concrete construction)
(Kurek, N.M.) (Ostrovskii, M.V.)

ACCESSION NR: AP4044827

S/0280/64/000/004/0081/0090

AUTHOR: Gal'perin, M. V. (Moscow); Korothevich, G. I. (Moscow); Minsker, I. N. (Moscow); Ry*basov, V. I. (Moscow)

TITLE: Solving nonlinear mathematical programming problems having one or more extrema on analog computers

SOURCE: AN SSSR. Izvestiya. Tekhnicheskaya kibernetika, no. 4, 1964, 81-90

TOPIC TAGS: computer programming, analog computer, nonlinear programming, mathematical programming, Pyne gradient method

ABSTRACT: The authors discuss Pyne's gradient method for analog computer solution of linear and convex programming problems from the standpoints of accuracy, speed and controllability. A monotonous convex function is considered, using a piecewise linear approximation, and an expression is derived for the time to solve a one-extremum programming problem using Pyne's method; the errors in the solution are also investigated. Using broad-band transistor amplifiers with a 100 ns time constant and δ -blocks having a 50 ns risetime, a linear or quadratic problem can be solved in less than 10 μ sec. Methods are next considered for reducing multiple-extremum problems to a finite set of one-extremum problems suitable for determinate solution (in contrast to the Monte Carlo approach). The block-diagram for solving the multiple extremum problem

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is then discussed in detail. Limitations of the method are determined basically by the static accuracy of the function generator, the performance of diode nonlinearity units and the speed of the analog unit, which can solve, on the average, 5×10^4 one-extremum problems per second, typical times being 1-2 hours for an accuracy of 2% and 5 minutes for 3-4%. Thus, the method is useful for finding the type of rough global minimum which is adequate for many control problems. Orig. art. has: 3 figures and 42 formulas.

ASSOCIATION: none

SUBMITTED: 27Nov63

ENCL: 00

SUB CODE: DP

NO REF SOV: 004

OTHER: 003

Card 2/2

ACCESSION NR: AP4036517

S/0103/64/025/005/0724/0726

AUTHOR: Gal'perin, M. V. (Moscow)

TITLE: Analysis of the error of electron analog devices due to finite passband of operational amplifiers

SOURCE: Avtomatika i telemekhanika, v. 25, no. 5, 1964, 724-726

TOPIC TAGS: amplifier, operational amplifier, operational amplifier error

ABSTRACT: Based on P. Dow's (Trans. IRE, PGEC, v. 6, no. 4, 1957) and A. B. Macnee's (Proc. IEE, v. 111, 1952) findings, these formulas for max and min relative errors are derived:

$$\delta_{\text{max}} = \frac{2nKT_y}{T_n}$$

$$\delta_{\text{min}} = \frac{nKT_y}{2T_n}$$

where $K = R/R_j$; T_y is the time constant of the closed amplifier; $T_n = R_j C_\beta$;

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ACCESSION NR: AP4036517

n is the number of summing amplifiers; e is the base of natural logarithms.
Orig. art. has: 14 formulas.

ASSOCIATION: none

SUBMITTED: 20Mar63

DATE ACQ: 03Jun64

ENCL: 00

SUB CODE: EC

NO REF SOV: 001

OTHER: 002

Card 2/2

ACCESSION NR: AT4014052

S/3073/63/000/000/0237/0247

AUTHOR: Gal'perin, M. Ya.

TITLE: Effect of surface damage on fatigue strength of structural steels

SOURCE: Prochnost' metallov pri peremenny*kh nagruzkakh; materialy* tret'yego soveshchaniya po ustalosti metallov, 1962 g. Moscow, Izd-vo AN SSSR, 1963, 237-247

TOPIC TAGS: fatigue, fatigue strength, steel, structural steel, steel fatigue, surface damage

ABSTRACT: Surface defects of small extension and depth, such as marks, scratches, saw cuts and nicks, are frequently encountered in practice. However, there is not sufficient information available with regard to the effect of such damage on the fatigue strength. An investigation was carried out to determine the influence of surface damage of very limited extension on the strength of the structural steels 45 and 45 Kh. The composition and mechanical properties of these steels are tabulated (see Table 1 of the Enclosure). The extent to which the geometry of notches, e. g., length, depth, and area occupied by the damage in the net section, changes the fatigue strength of tested specimens was determined. In addition, defects of limited extent were compared with corresponding continuous ring grooves with respect to their effect on fatigue strength. For static strength tests specimens

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7.52 mm in diameter were made of both of the tested steels. For fatigue strength tests specimens 7.52 and 15 mm in diameter were used. Ring grooves and notches of limited extension simulating local defects were ground with a depth of 0.1 to 1.7 mm and with a bottom radius of 0.05 to 2.5 mm; as shown in Fig. 1 of the Enclosure. Reference tests on static strength were performed on a hydraulic testing machine at a deformation speed of 1 mm/min. Rotation bending fatigue strength tests were performed on a NU-type machine at a frequency of 2860 cycles per minute. Fatigue strength was determined for a 10^7 cycle life. Theoretical stress concentration factors at the ring grooves, determined according to Neuber, attained values of $K_t = 4.5$ for 7.52 mm diameter specimens and $K_t = 6.5$ for 15 mm diameter specimens. Stress concentration factors cannot be determined by Neuber equations for notches simulating local damage on cylindrical specimens. On the basis of test results, the fatigue notch factors K_f were obtained for both notched and grooved specimens; K_f represents the ratio of the fatigue strength of a smooth specimen to that of a notched specimen, whereby K_f values are lower than K_t values. Fatigue notch factors K_f were plotted over geometrical parameters of the notches sections. Table 2 of the Enclosure gives a comparison of fatigue strengths of grooved and notched specimens at various groove (or notch) parameters for the investigated steels 45 and 40 Kh. On the basis of the test results, it was concluded that: (1) surface defects of limited extension, rounded at the

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ACCESSION NR: AT4014052

notch bottom with a radius of 0.1 mm on cylindrical specimens of 7.52 mm diameter do not reduce the static strength of steel 45 Kh provided the depth of damage does not exceed 1.0 mm, nor the static strength of steel 40 Kh provided the depth of damage does not exceed 0.3 mm; (2) for specimens of the same diameters, surface defects of very limited extension, rounded at the notch bottom with a radius of 0.1 mm and having different depths not less than 0.05 mm, reduce the fatigue strength of steels 45 and 40 Kh at the same rate as do continuous turned ring-grooves of corresponding depth and bottom radius of curvature. In the case of high strength steel 40 Kh, the comparable values scatter within 5 to 10%; (3) with a change in the absolute dimensions, surface defects of limited extension, rounded at the notch bottom with a radius of 0.1 mm have a more pronounced influence on the fatigue strength of round shafts with steel 40 Kh (high strength); (4) surface defects of limited extension, rounded at the notch bottom with a small radius may be more detrimental to fatigue strength than continuous turned ring-grooves of the same cross-section; these reduce the fatigue strength of round shafts of steels 45 and 40 Kh by 18 and 30%, respectively. Orig. art. has: 4 tables, 12 figures and 5 formulas.

ASSOCIATION: none

SUBMITTED: 00

SUB CODE: MM,AS

DATE ACQ: 20Feb64

NO REF SOV: 004

ENCL: 03

OTHER: 001

Card: 3/6

GAL'PERIN, M.Ya.; LEBEDINSKIY, A.P.; ZELENSKAYA, R.G.

Knock testing of automobile engines. Trudy lab.dvig. no.1:61-87
'55. (Automobiles--Engines) (MIRA 9:9)

ARONOV, D.M., kandidat tekhnicheskikh nauk; LEBEDINSKIY, A.P.; GAL'PERIN, M.Ya.

Nonuniform performance of engine cylinders and gasoline octane requirements. Avt.i trakt.prom. no.4:3-8 Ap '57. (MLRA 10:5)

1.Nauchno-issledovatel'skiy avtomotorny institut i Institut mashinovedeniya AN SSSR.

(Automobiles--Engines--Cylinders)

(Gasoline--Antiknock and antiknock mixtures)

2

SOV/180-59-2-10/34

AUTHORS: Gal'perin, M.Ya., Kostyukova, Ye.P., and Rovinskiy, B.M.
(Moscow)

TITLE: Change in the Substructure of Metals in Repeated Cyclic Loading (Izmeneniye substrukturny metallov pri mnogokratnom tsiklicheskom nagruzhenii)

PERIODICAL: Izvestiya Akademii Nauk SSSR, Otdeleniye tekhnicheskikh nauk, Metallurgiya i toplivo, 1959, Nr 2, pp 56-61 (USSR)

ABSTRACT: Increasing attention has been given recently to the substructure of crystal grains. Rovinskiy and Rybakova (Ref 5) and others (Ref 4) have shown that the yield-point strength and hardness increase with decreasing sub-grain size. The present work deals with substructural changes in 99.99% pure aluminium and electrolytic nickel during repeated cyclic loading at 25 cycles/second on a type MUP-150 machine. Fig 1 shows the form of the test pieces. Aluminium test pieces were annealed for two hours at 450 - 500 or 600 OC to obtain weakly- or strongly-developed substructures, respectively. Nickel test pieces were vacuum annealed for two hours at 900OC. The strain during tests was determined with a type EIDU-IMASh meter with the aid of wire strain gauges glued

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SOV/180-59-2-10/34

Change in the Substructure of Metals in Repeated Cyclic Loading to the specimen. The substructure was studied by the X-ray back-reflection method using a type BSV-I tube with a copper anode and linear focus (Fig 2). Figs 3 - 7 give patterns obtained after various numbers of cycles (up to 10⁷). Figs 3 and 7 related to aluminium previously annealed at 450 °C tested under repeated and variable sign bending, respectively, and stresses of 1.55 and 1.75 kg/mm², respectively. Figs 4 and 6 related to the repeated bending at stresses of 1.55 and 1.75 kg/mm², respectively, of aluminium previously annealed at 600 °C, and Fig 5 to that of aluminium at a stress of 1.75 kg/mm², previously annealed at 500 °C. The mechanical properties of aluminium with weakly- and strongly-developed substructures were compared: the results showed the superiority of the latter material. The work showed that in cyclic deformation the grain substructure of both aluminium and nickel became more complicated, this occurring in the early stages and ceasing after a definite number of cycles. The changes which occur in cyclically loaded aluminium depend on the nature of the substructure in the original grain; the

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SOV/180-59-2-10/34

Change in the Substructure of Metals in Repeated Cyclic Loading
less pronounced this is, the greater are the changes.
There is a definite relation between the hardening of
the specimen in the initial stage of cyclic deformation
and the development of its substructure. Substructural
changes do lead directly to fatigue failure.
There are 7 figures and 14 references, 4 of which are
Soviet, 9 English and 1 German.

ASSOCIATION: Institut Mashinovedeniya AN SSSR (Machinery Institute
of the AS USSR)

SUBMITTED: March 15, 1958

Card 3/3

AUTHORS: Gal'perin, M.Ya., Kostyukova, Ye.P. and Rovinskiy, B.M. SOV/180-59-4-14/48
(Moscow)

TITLE: The Influence of Cyclic Loading on the Structure of Deformed Pure Metals

PERIODICAL: Izvestiya Akademii nauk SSSR, Otdeleniye tekhnicheskikh nauk, Metallurgiya i toplivo, 1959, Nr 4, pp 82-87 (USSR)

ABSTRACT: X-ray studies of structural changes occurring in 99.99% aluminium and electrolytic nickel were carried out. Samples were annealed preliminarily deformed to 1, 2 or 4% and subjected to cyclic stressing by bending. X-ray pictures are shown for the annealed sample, the sample after deforming and the sample after various numbers of cycles in Fig 2, 3, 4 and 5 for aluminium and Fig 7 for nickel. The annealed samples of both aluminium and nickel give sharp interference spots corresponding to simple structures with fairly perfect crystallites. After the preliminary deformation the spots are more diffuse because there are subgrains present and the subgrains themselves are not perfect. The behaviour of nickel under subsequent cyclic loading is different from that of aluminium. For aluminium the sharpness of the spots

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SOV/180-59-4-14/48

The Influence of Cyclic Loading on the Structure of Deformed Pure Metals

reappears. This restoration is greater, the greater the amplitude of the stresses and the smaller the preliminary deformation. No restoration is observed in the X-ray picture of nickel. It is thought that the difference in behaviour occurs because aluminium has a low temperature of recrystallization. The increase in perfection of the subgrains is thought to be a thermal process causing recrystallization "in situ" to take place. There are 7 figures and 10 references, 3 of which are Soviet, 6 English and 1 German. ✓

SUBMITTED: April 23, 1959

Card 2/2

PHASE I BOOK REVISIONS

Experiments detail mainly on problems of
problems and methods (including the
Articles. Based on data of the
life and mechanical behavior of
1950. 225 p. Soviet Polytechnic.

Reviews: I.V. Kuznetsov, Doctor of
Sci. of Technical Sciences, Leningrad
University; V.I. Kuznetsov, Doctor of
Technical Sciences, Leningrad
Business Training (Vuz); A.V. Kuznetsov,
Candidate of Technical Sciences, Leningrad

Summary: This collection of articles is
as plant laboratories and scientific research
Centers. The articles contain data on
search facilities in the field of
for strength. A number of
normal conditions are
articles are accompanied by
Figures, Tables, Candidates of Technical Sciences, Leningrad

Summary: This collection of articles is
as plant laboratories and scientific research
Centers. The articles contain data on
search facilities in the field of
for strength. A number of
normal conditions are
articles are accompanied by
Figures, Tables, Candidates of Technical Sciences, Leningrad

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Manuscript, Ph.D. Candidate of Technical Sciences, Leningrad
The study of the Strength of Submarine and
Equipment by Machine

Yelkin, V.A., Engineer. Experiments Testing of Locomotive Components and
Parts 117

Parvashy, O.Y., Candidate of Technical Sciences, Lenin Prize Winner. Full
Scale Testing of Valve-Car Constructions 118

Gubinskiy, M.M., Doctor of Technical Sciences, Professor. Testing the Elements
of Steel Constructions Under Alternating Stresses 119

Gert, M.S., Candidate of Technical Sciences. Fatigue Testing of Crankshafts
and Classic Constructions 117

Rubintsev, I.M., Candidate of Technical Sciences. Full-Scale Testing of
Loaded Parts of Automobile Engines 115

Mozdalo, B.V., Professor. Problems in the Testing of Rolling-Contact Bear-
ings 117

Shkolnik, L.M., Candidate of Technical Sciences. Selection of Basic Dynamic
or Roller Experiments by a Full-Scale Fatigue-Test Method 116

Zarobintsev, O.Y., Candidate of Technical Sciences. Estimating the Impact
Strength of Rails 116

Gert, M.S., Candidate of Technical Sciences. Parameters of Basic Dynamic
Parameters of Equipment for Full-Scale Tests 117

Rubin, I.G., Engineer. Electric Methods of Excitation of Alternating Loads
in Full-Scale Fatigue Testing 117

Kozlovskiy, V.O., Professor, Doctor of Technical Sciences. Resonance Phenomena
in the Centrifugal Excitation of Alternating Forces 118

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Card 8/1

VE/mab/esp
9-1-60

(14)

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28971
S/179/61/000/003/014/016
E073/E535

AUTHORS: Gal'perin, M.Ya., Rovinskiy, B.M. and Sinayskiy, V.M.
(Moscow)

TITLE: On the influence of preliminary tensile plastic deformation on the fatigue strength of steel

PERIODICAL: Akademiya nauk SSSR. Izvestiya. Otdeleniye tekhnicheskikh nauk. Mekhanika i mashinostroyeniye, 1961, No.3, pp.161-162

TEXT: Most authors mention only an increase in the fatigue strength as a result of increasing work hardening produced by applying tension. N. I. Chernyak (Ref.1: "Fatigue strength of preliminarily stretched steel". Symposium Tr. In-ta stroitel'noy mekhaniki AN UkrSSR, 1953) found that a small amount of plastic deformation by tension does not increase but lowers the fatigue of steel. For $\epsilon^p = 1.0-2.0\%$ a minimum fatigue strength is reached, then the fatigue strength increases and for $\epsilon^p = 12\%$ it reaches a value corresponding to that of undeformed steel. The work described in this paper was carried out for the purpose of

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On the influence of preliminary ... ²⁸⁹⁷¹ S/179/61/000/003/014/016
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determining the relation between the magnitude of oriented residual microstresses occurring during plastic deformation in tension and the drop in the fatigue limit. Medium carbon steel, Steel 45, of 25 mm diameter was used in the tests, the mechanical characteristics of which were as follows:

$$\sigma_s = 39.8 \text{ kg/mm}^2, \quad \sigma_B = 66.0 \text{ kg/mm}^2$$

$$\delta_5 = 22.2\%, \quad \psi = 4.89\%, \quad a_k = 9.1 \text{ kgM/cm}^2, \quad H_B = 152$$

Several batches of specimens, 12 in each batch, were produced. The shape of the specimens was such that the same specimens could be used, without further machining, for the fatigue tests. The gauge length was 226 mm, the 20 mm long central section of which had a diameter of 8 mm, Fig.1. After machining to the desired size and surface quality the specimens were annealed in vacuo at 780°C for two hours and then allowed to cool together with the furnace. Following that, they were stretched at a rate of 2 mm/min within a range of 0 to 10%. For the gauge length the

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error in measuring the length did not exceed 0.03%. The fatigue tests were carried out with a loading frequency of 3000/min for a total duration of 10^7 cycles. Prior to the fatigue tests, the oriented microstresses were determined by X-ray methods; two X-ray diffraction patterns were taken from the same spot, one before and one after loading. The obtained results are plotted in Fig.2 and it can be seen that the maximum drop in the fatigue strength was achieved in the range of preliminary deformations of 1 to 2%, which is in good agreement with the results obtained by Chernyak (curve 3). The deviation between his results and the results of the authors of this paper (curve 1) is attributed to the fact that Chernyak did not anneal his specimens after machining. Fig.2 also gives the relation between the magnitude of the oriented microstresses σ_p (kg/mm^2) and the magnitude of preliminary deformation (curve 2). It can be seen that this curve has a minimum approximately for the same range of plastic deformation as was observed for curve 1. The curves 1 and 2 show similarity for small plastic deformations; the influence of work hardening starts to manifest itself at $\epsilon^p = 2\%$ which leads

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On the influence of preliminary ... ²⁶⁷⁷¹ S/179/61/000/003/014/016
E073/E535

to an increase in the fatigue strength. The obtained results confirm the assumption of the decisive role of residual oriented microstresses on the fatigue strength. This is in good agreement with data published earlier by the authors (Ref.6: Izv.AN SSSR, OTN, Mekhanika i mashinostroyeniye, 1961, No.2) on the relation between oriented microstresses and the residual plastic deformation. However, it is not as yet possible to propose a simple mechanical model of the phenomenon since the magnitude of the oriented microstresses is much greater than the drop in the fatigue limit. There are 2 figures and 6 Soviet references.

ASSOCIATION: Institut mashinovedeniya AN SSSR X
(Institute of Machine Science AS USSR)

SUBMITTED: January 18, 1961

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On the influence of preliminary ... S/179/61/000/003/014/016
E073/E535 ²⁸⁹⁷¹

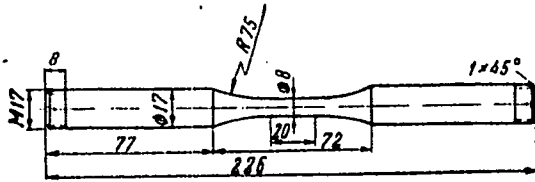


Fig. 1

Fig.1

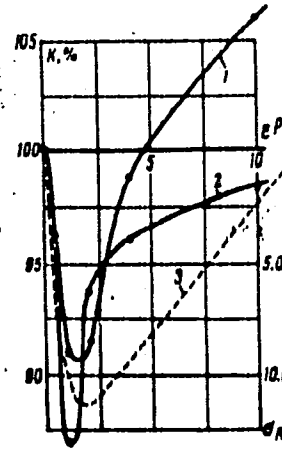


Fig. 2

Fig.2

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18.1111. 1416, 1496, 1045

22579

S/133/51/000/001/013/016
A054/A033

AUTHORS: Uzhik, G.V., Gal'perin, M. Ya., Koshelev, P.F., Livshits, G. L.,
and Terent'yeva, Ya. K.

TITLE: The Mechanical Properties of Low-alloy Steels (Plates)

PERIODICAL: Stal', 1961, No. 1, pp. 68 - 73

TEXT: The application of low-alloy high-strength steels instead of the
standard $C_{T.3cn}$ (St.3sp) and $C_{T.3kn}$ (St.3kp) carbon steels makes it possible
to reduce the weight of the structures by about 15 - 20%. To determinate the
mechanical properties of these types of steels at low temperatures (-70°, -196°C)
tests were carried out with the 19Г (19G); 09Г2 (09G2); 14Г2 (14G2); 15ГC (15GS)
12XГН (12KhGN) grade steels produced by the Al'chevskiy metallurgicheskiy zavod
(Al'chev Metallurgichl Plant), and the "Krasnyy Oktyabr" Plant, having the follow-
ing chemical composition:

Table 1:

- 1 - chemical composition of investigated melts
- 2 - steel grade (Number of melts)
- 3 - plate thickness, mm

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X

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A054/A033

The Mechanical Properties of Low-alloy Steels (Plates)

① Химический состав исследованных плавок, %

② Марка стали (номер плавки)	③ Толщина листа мм	C	Si	Mn	Ni	Cr	Cu	P	S	Al	Ti
19Г (4516)	9	0,16	0,27	0,89	—	—	0,020	0,035	0,019	—	—
12ХГН(2507)	12	0,15	0,22	1,22	1,04	0,36	0,07	0,027	0,030	0,03	0,03
14Г2 (1585)	20	0,14	0,27	1,38	0,14	0,26	0,15	0,037	0,020	—	—
14Г2 (3114)	20	0,18	0,33	1,62	0,12	0,21	0,13	0,034	0,023	—	—
15ГС (3184)	20	0,12	0,55	1,22	0,11	0,16	0,11	0,032	0,018	—	—
15ГС (3186)	20	0,16	0,72	1,32	0,17	0,29	0,14	0,030	0,016	—	—
09Г2	11	0,11	0,35	1,59	0,05	Следы	0,07	0,012	0,032	0,03	Следы

The steels were tested for tensile strength in the temperature range between +20° and -196°C, for notch impact strength and static bending, (+20°, -70°C), moreover for fatigue, (flat specimens bent in one plane, at +20°C, cylindrical specimens with bending and torsion). The tensile strength tests were carried out on a 30-ton multipurpose hydraulic test machine, in which the speed of the upper grip is 0.3 mm/min, the lower grip being stationary; the coolant used up to -70°C was ethyl alcohol, and up to -196°C liquid N. Prior to immersion each specimen was held at the test-temperature for 30 minutes. The notch impact strength tests were

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The Mechanical Properties of Low-alloy Steels (Plates)

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A054/A033

made with 10x10x55 mm samples with Mesnager notches. An MK-30 (MK-30) type drop test machine was employed, as prescribed by ГОСТ (GOST 1524-42). For static bending the 30-ton multipurpose test machine was also used: the bending was plotted (scale 24:1) by a special device. Fatigue tests at room temperature with flat specimens were carried out with the MYK (MUK)-100 type machine (for plain bending in one plane with a load frequency of 1500/min) while cylindrical samples were tested for the fatigue on HY (NU) type machines (3000 loadings/min). Samples of various thickness, with polished and unground surfaces, with and without notches were studied. Strength and ductility: The relationship between strength, ductility and temperature for the various steel grades is shown in table 2, while figure 1 represents the dependence of the $\frac{\sigma_{0.2t}}{\sigma_B}$ (a) and $\frac{\sigma_{Bt}}{\sigma_B}$ (b) ratios on temperature. The strength limit of the $\sigma_{0.2}$ tested steels increases approximately in the same way to -70°C , but increases intensively mainly in the 19G type steel at -196°C . The transition of the material from the plastic into the brittle condition is characterized by the gradual change of the differences $(\sigma_B - \sigma_{0.2})$ and $(S_k - \sigma_{0.2})$ under the effect of the temperature reduction, (Fig. 2). The smaller the difference the nearer the material is to brittleness. At -196°C the plasticity of 19G, 12KnGN, 14G2 and 15GS steels decreases considerably, mainly that of the 14G2 type. Elongation per unit length and la-

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The Mechanical Properties of Low-alloy Steels (Plates)

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A054/A033

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teral compression are characteristic for the metal with regard to change in ductility and its ability to maintain ductility even at low temperatures, which eliminates the risk of brittle fracture (mainly under dynamic load). These properties do not change in 19G and 12KhGN grade steels and only slightly in 14G2 and 15GS. The most sudden decrease in notch impact strength at temperatures between +20°C and -70°C could be observed in 14G2 and 15GS ($a_k < 1$ kgm/sq cm), most probably due to the heat condition of rolling. The smallest drop in this property ($a_k = 2.6$ kgm/sq cm) was found for 09G2 steel. The trend to brittle fracture was tested by brittle loading (Fig. 4). The diagram plotted for prismatic samples with Mesnager notches proves that the highest resistance against brittle fracture up to -70°C is shown by 09G2 steel. 12KhGN is not highly resistant against brittle failure at -70°C, 14G2 loses its toughness already at -30°C, 15GS also tends to produce elastic-plastic deformations at all temperatures. Table 3 clearly shows that 14G2 has the strongest trend to brittle failure, between +20° and -70°C (due to a higher carbon content), while the highest degree of failure resistance can be found in 09G2. In the fatigue tests the results were affected by the surface of the samples. In rough flat samples of 12KhGN steel the fatigue limit is 31.8% lower than in samples having a smooth surface. Polished cylindrical samples have a higher fatigue limit than polished flat samples. The highest fatigue limit

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The Mechanical Properties of Low-alloy Steels (Plates)

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A054/A033

was found in 15GS steel (melt 3106), while at room temperature there was hardly any difference in fatigue limit between the grades 14G2, 15GS and 19G, both for polished and notched surfaces. Notched samples (with stress concentration on the surface) have the highest fatigue limit when made of 19G steel, (Fig. 7). There are 7 figures, 4 tables and 2 references: 1 Soviet, 1 Non-Soviet.

Table 2:

Indices of mechanical properties of low-alloy steels for tensile tests
1 - steel grade; 2 - test temperature

Показатели механических свойств низколегированных сталей при испытаниях на растяжение

1 Марка стали (С. %)	2 Температура испытания °С	$\sigma_{0,2}$ кг/мм ²	σ_B кг/мм ²	σ_K кг/мм ²	δ_2 %	ψ %
19Г (19G)	+ 20	34,9-35,9	52,1-53,3	87,8-99,2	27,7-28,6	47,8-51,2
	- 20	38,8-39,0	57,5-58,0	96,0-98,8	29,5-33,6	49,2-51,0
	- 40	41,4-41,8	59,0-59,3	96,9-100,8	29,8-31,5	48,9-50,8
	- 70	44,0-44,3	61,9-62,4	100,4-103,3	30,0-32,5	47,3-48,6
	- 196	88,5-88,8	93,9-94,2	118,2-118,9	20,6-22,2	21,5-23,5
	+ 20	44,5-45,9	63,2-63,5	93,1-94,0	20,2-22,3	40,3-41,2
	- 20	46,5-47,4	67,2-67,3	98,9-99,9	22,3-24,3	39,1-39,5

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X

GALPERIN, M. G.

Совещание по работе с представителями...

Наименование предприятия: ...
Адрес: ...
Имя, фамилия, отчество: ...
Пол: ...

Род. М.: ...
Место рождения: ...
Пол. М.: ...

PURPOSE: ...

COVERAGE: ...

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Cyclic Metal Strength (Cont.)

SOV/6025

and growth of fatigue cracks, the role of plastic deformation in fatigue fracture, an accelerated method of determining fatigue strength, the plotting of fatigue diagrams, and various fatigue test methods. New data are presented on the sensitivity of high-strength steel to stress concentration, the effect of stress concentration on the criterion of fatigue failure, the effect of the size factor on the strength of metal under cyclic loads, and results of endurance tests of various machine parts. Problems connected with cyclic metal toughness, internal friction, and the effect of corrosion media and temperature on the fatigue strength of metals are also discussed. No personalities are mentioned. Each article is accompanied by references, mostly Soviet.

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NATURE OF FATIGUE FRACTURE

Oding, I. A. Diffusionless Mechanism of Formation and Growth of a Fatigue Crack
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Lebedev, T. A., T. K. Marinets, and A. I. Yefremov. Investigation of Cyclic Strength of Metals by Recording Fatigue Diagrams		141
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S/137/62/000/012/048/085
A005/A101

AUTHORS: Ivanova, V. S., Gal'perin, M. Ya.

TITLE: An analysis of the possibility of using new criteria for rapidly determining the fatigue limit

PERIODICAL: Referativnyy zhurnal, Metallurgiya, no. 12, 1962, 102, abstract 12I632 (In collection: "Tsiklich. prochnost' metallov", Moscow, AN SSSR, 1962, 134 - 140)

TEXT: The possibility is analyzed of using criterion N_{cr} , determined from one of the fatigue curves (within the range of a given metal group), to establish the rated value of the fatigue limit, according to formula $\sigma_{-1} = \sigma_{cr} - \alpha_{\sigma}$ applicable to fatigue rotation bending tests and symmetrical bending in one plane; σ_{cr} is the critical stress or the stress causing failure at the critical number of cycles N_{cr} , and α_{σ} is the cyclic constant. The number of cycles N_{cr} for investigating the group of low-alloy steels, can be calculated from the formula $N_{cr} = C_p \cdot T_s E \gamma A \beta_{av}^{-2}$, where C_p is the specific heat capacity;

✓

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An analysis of the possibility of using new...

S/137/62/000/012/048/085
A006/A101

T_s is the melting point; E is the modulus of elasticity; γ is the specific weight; f_{av} is the coefficient equal to 8.5 kg/mm^2 . The use of the new fatigue criteria makes it possible to reduce considerably the duration of fatigue tests; in the presence of sharp stress concentrators N_{cr} increases as compared to its value for smooth specimens.

A. Nikonov

[Abstracter's note: Complete translation]

Card 2/2

S/129/62/000/002/008/015
E073/E555

AUTHORS: Grozinskaya, Z.P., Candidate of Technical Sciences and
Galperin M.Ya., Engineer

TITLE: On increasing the fatigue strength by work-hardening
the surface with balls

PERIODICAL: Metallovedeniye i termicheskaya obrabotka metallov
no 2, 1962, 43-45

TEXT: The authors investigated the influence of surface
work-hardening of smooth 10 mm diameter specimens made of normal-
ised steel 45 (0.45% C, 0.3% Si, 0.7% Mn, 0.08% Cr, 0.1% Ni,
0.017% S, 0.028% P) by means of a 3-ball attachment on a lathe.
The fatigue tests were in pure bending in a symmetrical cycle of
a frequency of 3000 cycles/min with a total duration of 10^7 cycles.
Various characteristics of the work-hardened layer were produced
by changing the conditions of work-hardening so as to obtain:
a) various surface hardness values with a constant depth of the
work-hardened layer and b) various depths of the work-hardened
layer and a constant surface hardness. The following conclusions

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On increasing the fatigue

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E075/E555

were arrived at:

- 1) A reduction of the feed rate and an increase in the number of passes at the appropriate pressure brings about an increase in hardness as well as an increase in the fatigue strength, provided that $\delta/R < 0.2$ (R - radius of the work-hardened specimen).
- 2) The most rational ball diameter is the one which produces maximum work-hardening whilst simultaneously maintaining the ratio $\delta/R > 0.2$ ✓
- 3) For improving the fatigue strength, the depth and degree of work-hardening must in every case be chosen in accordance with the work-hardened material and the work-hardening conditions. The paper contains plots of the fatigue strength, the depth of the work hardened layer and the hardness resulting from work-hardening as a function of pressure, feed rate, ball diameter and the number of passes, for a ball load of 50 kg. Fig 2 shows plots of the increase in the fatigue strength as a function of the hardness H_v (Fig 2a) and the relative depth of work-hardening (Fig 2b). There are 2 figures, 1 table and 5 Soviet-bloc references.

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S/032/62/028/012/018/023
B104/B186

AUTHOR: Gal'perin, M. Ya.

TITLE: The use of metal testing machines in examining the dynamic strength of glass-reinforced plastic plates

PERIODICAL: Zavodskaya laboratoriya, v. 28, no. 12, 1962, 1518-1520

TEXT: Attempts were made to test plastics of the type АГ-4С (AG-4S), СВМ (SVAM) and ПН-1 (PN-1) in the same manner as metal specimens on a cyclic bending test machine, type МУК-100 (MUK-100). The usual shape of test specimens with tapered test areas, holed and notched for clamping, proved to be of little use. Furthermore, cyclic bending tests of the glass fiber-reinforced plastics caused peeling due to defects in the fibers resulting from mechanical working. Therefore specimens in the form of bars with no holes and a minimum of mechanical working defects were used, which were fastened into the testing machine by a special clamping device. The results (Fig. 2) show good agreement with those known from published data. With the clamping device thus modified, standard metal testing machines can be successfully used for testing glass-fiber plastics (with a thickness of

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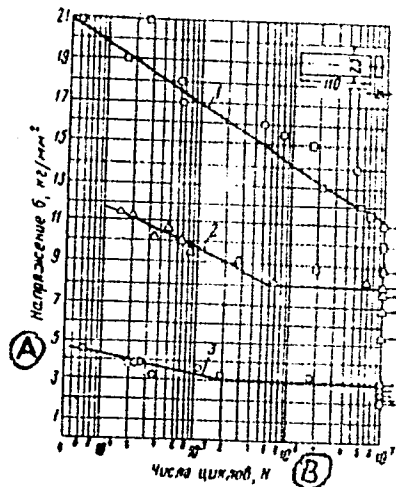
The use of metal testing machines in...

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10-16 mm, and cross-sections, of 250-400 mm²). There are 2 figures and 1 table.

Fig. 2. Fatigue strength of glass-reinforced plastics.

Legend: (1) АГ-4С (AG-4S),
(2) СВАН (SVAM), (3) ПЧ-1 (PN-1).
(A) stress, kg/mm², (B) number of load cycles.



Card 2/2

SARKHOSH'YAN, G.N., inzh.; GAL'PERIN, M.Ya., inzh.

Mechanized welding in the repair of automobile assemblages. Svar.
proizv. no.9:29-32 S '63. (MIRA 16:10)

1. Nauchno-issledovatel'skiy institut avtomobil'nogo transporta
(for Sarkhosh'yan). 2. Institut mashinovadeniya AN SSSR (for
Gal'perin).

I 32454-65 EWT(m)/EWP(w)/EWA(d)/EWP(v)/E/EWP(t)/EWP(k)/EWP(b) PE-4 JD/HM

ACCESSION NR: AP4047224

S/0125/64/000/010/0014/0019

AUTHOR: Gal'perin, M. Ya. (Engineer); Sarkhoshtyan, G. N. (Engineer)

25
23
B

TITLE: The determination of the mechanical properties of weld joints in thin steel sheets

SOURCE: Avtomaticheskaya svarka, no. 10, 1964, 14-19

TOPIC TAGS: low carbon sheet, butt weld, propane butane mixture, carbon dioxide, acetylene oxygen torch, fatigue limit, weld reinforcement

ABSTRACT: The mechanical properties of low-carbon thin sheets joined by different welding methods were determined. 0.9 mm thick "08" steel specimens had the following composition: 0.05 to 0.11% C; 0.03% Si; 0.25 to 0.50% Mn; 0.04% P; 0.04% S; 0.1% Cr; 0.25% Ni. Specimens were cold rolled but no additional heat treatment was applied. Investigations were conducted at the Institute of Machine Building (Institut mashinovedeniya) under the supervision of G. V. Uzhik, Doctor of technical sciences. The static strength of the butt welds underwent negligible changes in comparison with the parent metal. However, elonga-

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tion per unit length and reduction decreased appreciably. The highest fatigue limit was displayed by specimens with a regular weld produced by carbon-dioxide semi-automatic welding. The fatigue limit of specimens joined by propane-butane gas torch exceeded that of weld made by acetylene-oxygen flame by 17%. Reinforced butt joints produced by manual propane-butane method proved 15% more resistant to fatigue deterioration than regular seam welds. The fatigue limit of specimens welded in carbon dioxide by semi-automatic method was 23% higher than that of similar joints produced by manual acetylene-oxygen torch and 5% higher than similar joints obtained by manual propane-butane welding. Orig. art. has: 5 figures and 2 tables.

ASSOCIATION: [Gal'perin] NII Mashinovedeniya (Scientific Research Institute for Machine Building); [Sarkosh'yan] NIIAT (Scientific Research Institute of Automatics)

SUBMITTED: 17Feb64

ENCL: 00

SUB CODE: MM

NR REF SOV: 093

OTHER: 000

Card 2/2

GAL'PERIN, M.Ya.

Determining the tendency to brittle fracture in beams of
varying sizes in the presence of concentrated stresses.

Zav. lab. 31 no.11:1384-1385 '65.

(MIRA 19:1)

1. Gosudarstvennyy nauchno-issledovatel'skiy institut mashino-
vedeniya.

L 04290-67 EWT(m)/T/EWP(t)/ETI IJP(c) JD

ACC NR: AP6018949

(N)

SOURCE CODE: UR/0126/66/021/006/0929/0934

AUTHORS: Rovinskiy, B. M.; Sinayskiy, V. M.; Gal'perin, M. Ya.

31
B

ORG: NII for Machine Design (NII mashinovedeniya)

TITLE: Investigation of the stability of defects arising in metals due to metal fatigue

SOURCE: Fizika metallov i metalovedeniye, v. 21, no. 6, 1966, 929-934

TOPIC TAGS: aluminum metallurgy, copper, x ray diffraction study, x ray scattering, metal crystal

ABSTRACT: The stability of fatigue defects in metals was studied on both aluminum and copper specimens. The study supplements the results of an earlier investigation by B. M. Rovinskiy and V. G. Lyutsau (FMM, 1961, 12, 305). The work was carried out by measuring the change in x-ray scattering by the metal specimens in the fatigued and relaxed state. The effect of aging on the plasticity and durability of cyclically deformed copper was also studied. The experimental data obtained in this part of the investigation were treated after the method of N. N. Davidenkov and G. T. Nazarenko (ZhTF, 1953, 23, 741). The experimental results are presented graphically (see Fig. 1). It was found that the intensity of scattered x-rays is notably dependent on deformation of the crystal lattice (caused by the cyclical deformations) and on aging (connected with the relaxation of the deformed crystal

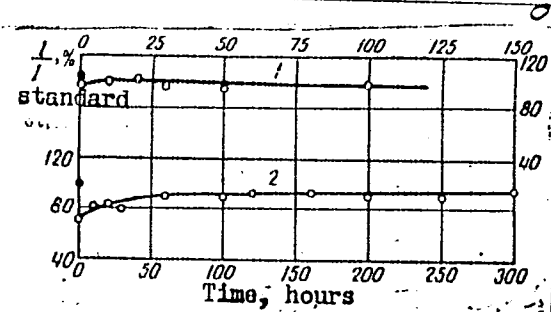
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UDC: 539.43:539.292

L 04290-67

ACC NR: AP6018949

Fig. 1. Integral intensity of the Debye line (400) of cyclically deformed copper as a function of aging period. Solid dots represent the relative scattered intensity for the specimens in the initial state. 1 - 10^7 cycles $\sigma_{max} = 10 \text{ kg/mm}^2$; 2 - 10^6 cycles $\sigma_{max} = 16 \text{ kg/mm}^2$; aging temperature - 80C.



lattice). The authors conclude that the vacancy and micropore defects heal with time, provided that the latter are smaller than λ (critical), that vacancies are precipitated on pores and cracks in excess of λ (critical), and that a general coagulation of micropores smaller than λ (critical) takes place in the aged specimens. Orig. art. has: 4 graphs.

SUB CODE: 11/ SUBM DATE: 02Jul65/ ORIG REF: 005/ OTH REF: 002

Handwritten: A. V. Car: 2/2

GALETTI, M. -- [Ye]

"Morphological and Functional Changes in the Blood Vessels of the Brain in Various Diseases of the Litter as Seen on Roentgen Pictures (Clinicoexperimental Angiographic Investigation)." Dr Med Sci, Leningrad Psychoneurological Inst, Leningrad, 1954. (SovBiol, No 4, Oct 54)

Survey of Scientific and Technical Dissertations Defended at USSR Higher Educational Institutions. (10)

SO: Sum. No. 481, 5 May 55

GAL'PERIN, M. Ye. Doc Med Sci --(diss) " The striction^{is testing} method of discovering
toxins in cases of infectious diseases. (Clinical and laboratory study)" Mos, 1955
19 pp 20 cm, (1st Mos Order of Lenin Med Inst), 110 copies
(KL, 7-57, 108)

59

GAL'PERIN, M. Ye.

New methods of early diagnosis of infectious diseases. Zhur.
mikrobiol.epid. i immun. no.8:54-59 Ag '55 (MLRA 8:11)
(SERUM DIAGNOSIS,
in communicable dis.)

GAL'PERIN, M.Ye., dotsent; POPOVA, N.S.

Interstitial pneumonias in some infectious diseases. Sbor. trud.
Kursk. gos. med. inst. no.13:207-210 '58. (MIRA 14:3)

1. Iz kliniki infektsionnykh bolezney (zav. - dotsent M.Ye. Gal'perin)
Kurskogo gosudarstvennogo meditsinskogo instituta.
(PNEUMONIA)

GAL'PERIN, M.Ye., dotsent; SERGEYEV, V.I., assistant

Influence of bromine and caffeine on the vascular reaction in patients with acute and chronic dysentery. Sbor. trud. Kursk. gos. med. inst. no.13:211-213 '58. (MIRA 14:3)

1. Iz kliniki infektsionnykh bolezney (zav. - dotsent M.Ye.Gal'perin)
Kurskogo gosudarstvennogo meditsinskogo instituta.
(BROMINE—PHYSIOLOGICAL EFFECT) (CAFFEINE—PHYSIOLOGICAL EFFECT)
(REFLEXES) (DISENTERY)

GAL'PERIN, M.Ye.; SERGEYEV, V.I.

Vascular reactions in patients with acute and chronic dysentery.
Vrach.delo no.3:319 M_r '60. (MIRA 13:6)

1. Kafedra infektsionnykh bolezney Kurskogo meditsinskogo insti-
tuta.

(DYSENTERY)

(BLOOD PRESSURE)

GAL'PERIN, M.Ye.

Iterated limits of certain trigonometric series. Uch. zap.
Kab.-Bal. gos. un. no.17:3-4 '63.

Sufficient conditions for the summability of double series
by Riemann's method (R_{pq}). Ibid.:4-6 (MIRA 17:1)

С.А. ГАБРИЭЛ, 1930 г.
ABRAMOV, Emmanuil Adol'fovich: kandidat istoricheskikh nauk; GALPERIN, M. Yu.,
kandidat istoricheskiiy nauk, nauchnyy redakter; VLADIMIRSKIY, D.M.,
redaktor izdatel'stva.

[The creative activity of the masses is a great force in the struggle
for technical progress] Tvercheskaia aktivnost' mass-velikaia sija v
bor'be za tekhnicheskii progress. Leningrad, Ob-ve po rastrostraneniiu
polit. i nauchn. znaniu RSFSR, Leningr. otd-nie, 1956. 53 p.
(MLRA 10:4)

(Efficiency, Industrial)

GAL'PERIN, Mikhail Zakharovich [Hal'perin, M.Z.], kand.ekonom.nauk;
ALEKSANDROVA, V.P., kand.ekonom. nauk, red.

[Organization of smooth and rhythmic work in industrial enterprises] Organizatsiia rivnomirnoi i ritmichnoi roboty promyslovoho pidpriemstva. Kyiv, 1960. 33 p. (Tovarystvo dlia poshyrennia politychnykh i naukovykh znan' Ukraini's'koi RSR. Ser.7, no.4). (MIRA 13:4)
(Industrial management)

GALPERIN, N.

DECEASED

1963/3

c' 1962

FINANCE -
industry

see ILC

SOKOLOVSKIY, Lev Osipovich; GAL'FERIN, N.B., nauchnyy red.; SACHIKOV, M.I., red.; PEREDERIY, S.P., tekhn. red.

[Progressive methods of intricate shape aluminum alloy casting] Progressivnye metody fasonnogo lit'ia iz aliuminievykh splavov. Moskva, Proftekhizdat, 1962. 94 p. (MIRA 15:7)
(Aluminum founding)

GAL'PERIN, N. I., and KVASHA, V. B.

"Determination and Maintenance of the Optimum Regime
of a Temperature Field in Chemical Reactors."

Report submitted for the Conference on Heat and Mass Transfer,
Minsk, BSSR, June 1961.

SHANIN, S.A.; BALABAY, F.I.; KONONENKO, D.F.; MIKULIN, G.I. [Mykulin, H.I.];
BOROVSKAYA, N.V. [Borovs'ka, N.V.]; SHINKEVICH, A.P. [Shynkevych, A.P.];
LIBERZON, L.M.; AMELIN, A.G. [Amelin, A.H.]; BURYAK, K.A.; PECHONKIN,
V.V. [Piechonkin, V.V.]; YATSENKO, N.N.; GAL'PERIN, N.I. [Hal'perin,
N.I.]; PEBALK, V.L.; CHEKHOMOV, Yu.K.

Inventions and improvements; certificates of inventions. Khim.prom.
[Ukr.] no.2:62-64 Ap-Je '65. (MIRA 18:6)

CAL'PERIN, N. K.

The following is among dissertations of the Leningrad Polytechnic Institute imeni Kalinin:

"Methods of Calculating the Wear Time of Delayed-Action Electromagnetic Switches." 20 March 1950. Transition processes in delayed-action electromagnetic switches have been investigated. Calculation was made of the transition processes with consideration of the leakage of the magnetic flux, saturation of the steel of the magnetic conductor, and eddy currents in continuous sections of the magnetic circuit.

SO: M-1048, 28 Mar 56

GAL'PERIN, N. K.

"Methods of Calculating the Operating Time in Electromagnetic Delayed-Action Circuit Breakers," (Metody rascheta vremeni srabatyvaniya elektromagnitnykh vyklyuchateley s vyderzhkoy vremeni), Elektrichestvo, No. 7, 1950.

LPI (Leningrad Polytechnic Institute)
Dissertation for Candidate Degree

System of Material Supply in Industry
GAL' PERIN, Nikolay Semenovich; AM'OSENKOVA, L., red.; TROYANOVSKAYA, N.
tekhnicheskii red.

[New developments in the organization of the material and equipment
supply system] Novoe v organizatsii material'no-tekhnicheskogo
snabzheniia. Moskva, Gos. izd-vo polit. lit-ry, 1957. 54 p.
(Industry) (MIRA 11:3)

ARTEMOV, Yu.M., kand. ekonom. nauk; GAL'PERIN, N.S., kand. ekon. nauk; GUBIN, B.V., kand. ekon. nauk; ZHUKOV, V.N., kand. ekon. nauk; OCHKOV, M.S. kand. ekon. nauk; OSKORDOV, V.P., starshiy ekonomist; BARGOL'STS, S.B., dotsent, kand. ekon. nauk; SIBIRYAKOV, L.Ye.; IVANOV, N.N.; RABINOVICH, M.A., ekspert; LIPSITS, V.B., kand. ekon. nauk; VOLKOV, S.I., kand. ekon. nauk; KOROLEVA, Ye.P., aspirantka; RYUMIN, S.M., red.; SUBBOTINA, K., red.; TELEGINA, T., tekhn. red.

[Planning and calculating the cost of industrial production] Voprosy planirovaniia i kal'kulirovaniia sebestoimosti promyshlennoi produktsii. Moskva, Gosfinizdat, 1961. 183 p. (MIRA 14:8)

1. Moscow. Nauchno-issledovatel'skiy finansovyy institut. 2. Sotrudniki Nauchno-issledovatel'skogo finansovogo instituta (for Artemov, Gal'perin, Gubin, Zhukov, Ochkov, Oskordov). 3. Vsesoyuznyy zaochnyy finansovo-ekonom. institut (for Bargol'ts). 4. Glavnyy bukhgalter Moskovskogo elektrozavoda (for Sibiriyakov). 5. Starshiy konsul'tant Upravleniya bukhgalterskogo ucheta Ministerstva finansov SSSR (for Ivanov, Rabinovich). 6. Nachal'nik podotdela obshchikh ekonomicheskikh voprosov tsenoobrazovaniya Byuro tsen pri Gosplane SSSR (Lipsits). 7. Moskovskiy ekonomiko-statisticheskii institut (for Koroleva)

(Costs, Industrial)

GAL'PERIN, P. Ya.

"Post-Leukotomic Psychological Changes in Schizophrenics," Nevropatol.
i Psikhiat., 17, No.4, 1948

Psychiatric Lab., Central Inst. of Psychiatry