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.

TABLE OF CONTENTS:

NATURE OF FATIGUE FRACTURE

S/137/62/000/012/032/085
A006/A101

AUTHORS: Kudryavtsev, I. V., Savvina, N. M.

TITLE: On the causes of a decrease in the fatigue strength of steel in contact zones

PERIODICAL: Referativnyy zhurnal, Metallurgiya, no. 12, 1962, 50, abstract 12I298 (In collection: "Tsyklich. prochnost' metallov", Moscow, AN SSSR, 1962, 31 - 36)

TEXT: Additional information to literature data is presented making it possible to evaluate the causes of decreasing cyclic strength of steel parts in connection with contact phenomena. The authors determined the effect of the interlayer material between the specimens and the machine clamps and of the interlayer thickness upon the cyclic strength of flat steel plates in the spot of contact. The tests were made on Ст-3 (St-3) steel specimens with the use of УП-30 (UP-30) type machines, which produce plain bending of the specimen in one plane at a symmetrical cycle with about 2000 frequency per 1 minute. The test basis was 10 million cycles. The tests were made with differently thick presspahn, Zn, Al, Cu, carbon and stainless steel specimens. The endurance limit was determined

Card 1/2

from the fracture of the specimen or from crack formation. The data obtained confirm the effect of the interlayer material and their thickness upon the cyclic strength. It is shown that the electric erosion factor may play an important part in the decrease of the cyclic strength. The authors believe that simultaneously the effect of other factors should also be taken into account, namely, stress concentration, mechanical wear of the surface, and fretting-corrosion. There are 6 references. See also RZhMet, 1961, 11145.

G. Rymashevskiy

[Abstracter's note: Complete translation]

KUDRYAVTSEV, I.V., d-r tekhn.nauk; SAVVINA, N.M., kand.tekhn.nauk

Fatigue of large-stepped shafts made of alloy steels. Acta techn Hung 41 no.1/2:35-49 '62.

1. Tsentralnyy nauchno-issledovatelskiy institut tekhnologii i mashinostroeniya (TSNIITMASH), Moskva.

G/011/62/000/003/003/004
D029/D109

AUTHOR: Kudryavtsev, I.V., Professor, Doctor of Technical Sciences
The article was revised by Müller, Gerhard, ZIS Halle (Saale)

TITLE: Fatigue strength of electroslag-welded alloyed-steel joints

PERIODICAL: Schweisstechnik, no. 3, 1962, 116 - 120

TEXT: Tests were carried out in the TsNIITMASh for determining the fatigue strength of ES- welded joints of rolled and cast carbon steel and low-alloyed cast steel. The samples of rolled steel 22 K and of Steel St 20ГСЛ (GSL) were welded with a set developed by the Paton Institute with a welding head type A-372. Another ES welding method used in the tests was developed in the Machine Building Plant Novokramatorsk. Results: Steel 22К (K) = 14.0 kp/mm^2; 22 K welded to 20 GSL = 16.0 kp/mm^2; 40ХН (KhN), tempered and stress-annealed = 14.5 kp/mm^2; 40 KhN, normalized and stress-annealed = 18.5 kp/mm^2; 34ХМ (KhM) = 19.5 kp/mm^2; 15ГН4М (15 GN 4 M) = 24.5. kp/mm^2. There are 12 figures and 8 tables.

SUBMITTED: October 20, 1961

Card 1/1

34849
S/135/62/000/003/001/00
A006/A101

18.1111

AUTHORS: Kudryavtsev, I. V., Professor, Doctor of Technical Sciences, Savvina, N. M., Candidate of Technical Sciences, Chernykh, V. V., Engineer

TITLE: The fatigue strength of alloyed steel joints produced by electric slag welding

PERIODICAL: Svarochnoye proizvodstvo, no. 3, 1962, 1 - 5

TEXT: The authors investigated fatigue strength of joints of 40XH (40KhN), 34XM (34KhM), 15ГН4М (15GN4M), 22K and 20ГСЛ +22K (20GSL+22K) steels, welded by the electric slag method and subsequently subjected to heat treatment, (quench-hardening, tempering, normalizing). Fatigue tests were made with prismatic plates (535x75x50 mm), surface-hardened by stamping on a horizontal milling machine with the aid of an impact device. The mechanical properties of the base and weld metal were determined and compared to those of carbon and low alloy steels. The following results were obtained. The fatigue strength of electric slag welded joints of rolled 22K steel, determined on specimens of 50x75 mm section, which had been subjected to heat and mechanical treatment after welding,

is

Card 1/2

The fatigue strength of...

S/135/62/000/003/001/009
A006/A101

is only slightly below the fatigue strength of the base metal. The endurance limit of weld joints of 20JSL+22K steel is not below that of 22K+22K steel joints. The endurance limit of the welds was in all cases close to that of the base metal. The technology of electric slag welding large size forged work pieces of the investigated alloyed high-strength steels was developed and assimilated at the Novokramatorsk Machinebuilding Plant. It assures high strength of the weld joints. Non-observation of the welding conditions entails the appearance of impurities in the weld and considerably reduced fatigue strength of the joint (from 19 to 14.5 kg/mm^2 for quenched 40KhN steel). There are 6 figures, 4 tables and 7 Soviet bloc references.

ASSOCIATIONS: TsNIITMASh (Kudryavtsev, Savrina); Novo-Kramatorskiy mashinostroitel'nyy zavod (Novo-Kramatorsk Machinebuilding Plant) (Chernykh)

Card 2/2

X

S/122/62/000/004/001/006
D221/D302

AUTHORS: Kudryavtsev, I.V., Doctor of Technical Sciences, Professor, and Belkin, M.Ya., Engineer

TITLE: Increasing the load-carrying capacity of large steel shafts

PERIODICAL: Vestnik mashinostroyeniya, no. 4, 1962, 3 - 7

TEXT: Special devices were designed by TsNIITMASh and other institutions for experimental determination of fatigue characteristics of large specimens. The tests revealed the effectiveness of surface hardening by the strain method when applied to critical zones of stress concentration. The work of Vsesoyuznyy nauchno-issledovatel'skiy teplovoznyy institut (Kolomna) (All-Union Scientific Research Institute of Locomotives) demonstrated that the fatigue limit of stepped shafts due to hardening by roller burnishing is independent of the scale of the modelling. The fatigue tests on specimens with diameters ranging from 20 to 160 mm in 40ХН (40 KhN) and 40Х (40 Kh) steels were carried out in order to ascertain the possibility of replacing the former. Dimensions of the test-pieces and the

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S/122/62/000/004/001/006
D221/D302

Increasing the load-carrying ...

steel compositions are quoted. The specimens with stress raisers were examined both in treated and untreated conditions. The different dimensions provided the answer to the scale factor. The sleeves for force fit were made in steel Ст 3 (St. 3) and to ОСТ (OST) 1042 specifications. The operation of roller-burnishing is described in detail. The fatigue tests were carried out in a У-200 (U-200) resonance type machine designed by TsNIITMASh, which ensured a symmetrical cycle of torsional bending. Some failures occurred outside of the concentration of stresses. Comparison of results indicated that the press-fit of sleeves and fillets reduces the fatigue strength of large shafts. 40KhN steel appeared more sensitive to stress raisers than 40 Kh. The effect of the scale factor follows in this order: Plain, stepped and press-fit specimens for the untreated items. The strain-hardened specimens exhibited a similar behavior. Consequently, the chrome-nickel steel, 40KhN, has little advantage over the chrome steel, 40Kh. The fatigue strength of stepped shafts has increased by 1.5 - 2 times, whereas that of sleeved components improved by 2 - 2.3 times due to work-hardening. Fatigue resistance decreased with increasing size of the shafts. Candidate of Technical Sciences N.A. Balabanov, Engineer, V.N.

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Increasing the load-carrying ... S/122/62/000/004/001/006
D221/D302

Chizhik and M.I. Nagornaya participated in the experimental part of the work. There are 5 figures, 1 table and 10 references: 9 Soviet-bloc and 1 non-Soviet-bloc.

Card 3/3

KUDRYAVTSEV, I.V., doktor tekhn.nauk, prof.; ZAYTSEV, G.Z., kand.tekhn.nauk; SHUR, D.M., inzh.; NAUMCHENKOV, N.Ye., kand.tekhn.nauk

"Dynamic strength of weld joints in low-carbon and low-alloy steels" by A.E. Asnis. Reviewed by I.V. Kudriavtsev and others. Svar. proizv. no.9:44-45 S '62. (MIRA 15:12)
(Steel—Welding)
(Asnis, A.E.)

ACCESSION NR: AT4014050 S/3073/63/000/000/0204/0224

AUTHOR: Kudryavtsev, I. V.; Chizhik, V. N.

TITLE: Increasing the fatigue strength of threaded machine parts

SOURCE: Prochnost' metallov pri peremenny*kh nagruzkakh; materialy* tret'yego soveshchaniya po ustalosti metallov, 1962 g. Moscow, Izd-vo AN SSSR, 1963, 204-224

TOPIC TAGS: fatigue strength, metal fatigue, metal thread, cold rolling, metal stress, metal strength, cut thread, thread rolling, stress concentrator

ABSTRACT: Stress concentrations caused by threading considerably decrease the fatigue strength of cyclically loaded machine parts. The common method of cutting thread leads to an interruption of grain flow in rolled and forged materials, which adversely affects the strength of details at the location of the thread. The formation of threads by cold-rolling considerably reduces the unfavorable effect of stress concentrations which result in plastic deformation of a metal surface layer in which residual compressive stresses are produced. The original grain flow is not cut but is deformed to follow the profile of the thread. The technological process of thread-rolling insures higher production and is widely applied in mass production of small screws, bolts, and other parts externally threaded.

Card 1/6

ACCESSION NR: AT4014050

However, thread-rolling is practicable only on details of relatively small diameter, up to 40-50 mm, because higher pressure is required on the rollers with details of larger diameters. Rolling devices are also more complex. Experimental investigations have been performed and described in the past, showing that special finishing operations can be applied at the bottom of larger cut threads to increase the fatigue strength of details. New investigations made in this field by TsNIITMASh are described by the authors. New methods have been applied to produce plastic deformation of metal surface, such as the use of vibrating rollers for surface-rolling with the simultaneous application of a vibrational impact load to produce a peening effect to a great depth (see Figs. 1 and 2 of the Enclosure). These new devices are universal and can be applied to details of any size as attachments on the lathe. Fatigue tests have been conducted by pulsating tension and by bending small and large specimens having threads of the buttress, metric, and trapezoidal type. These tests have shown that strengthening of the thread bottom by plastic deformation increases the carrying capacity of threaded details 1-1/2 - 2 times and more. This effect has been observed on both small and large details (shafts up to 215 mm in diameter), on different types of steel, and with different types of cyclic loading. The influence of non-uniform distribution of loading along the threaded portion of bolts under a nut on the fatigue strength

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ACCESSION NR: AP4019[illegible]

by pulsating [illegible] has been experimentally estimated. In contrast to bolts without surface treatment, such bolts which have been subjected to the strengthening roller at bottom of thread have not shown sensitivity to the above [illegible] non-uniform distribution of loading along the bolt in the contact zone with the nut. The results of strengthening treatment of threaded details by vibratory rollers have been established for practical purposes and corresponding recommendations have been issued to industrial plants where the recommendations have been applied to advantage. Orig. art. has: 15 figures and 6 tables.

ASSOCIATION: none

SUBMITTED: 00 DATE ACQ: 20Feb64 ENCL: 03

SUB CODE: MM NR REF SOV: 014 OTHER: 002

Card 3/3

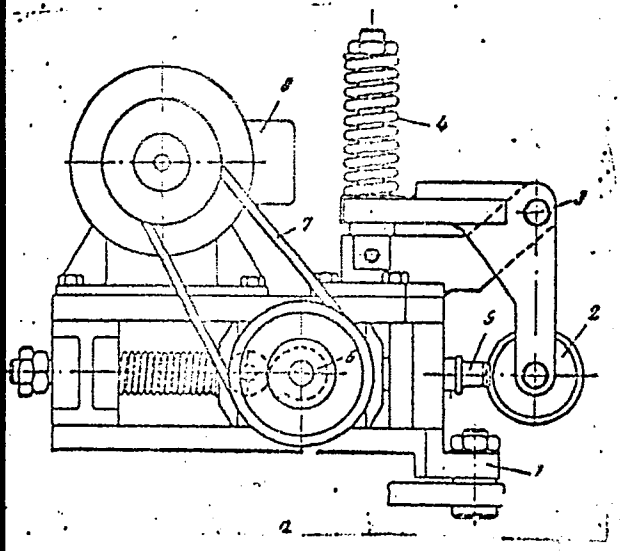

Fig. 1 - Impact producing device UP-0.25 with vibrating roller

a. Schematic illustration

1 -connection of device to support of lathe

2 -roller for surface-rolling

3 -fulcrum pin of lever

4 -spring

5 -ram

6 -cam

Card 4/6

ACCESSION NR: AT4014050

ENCLOSURE: 02

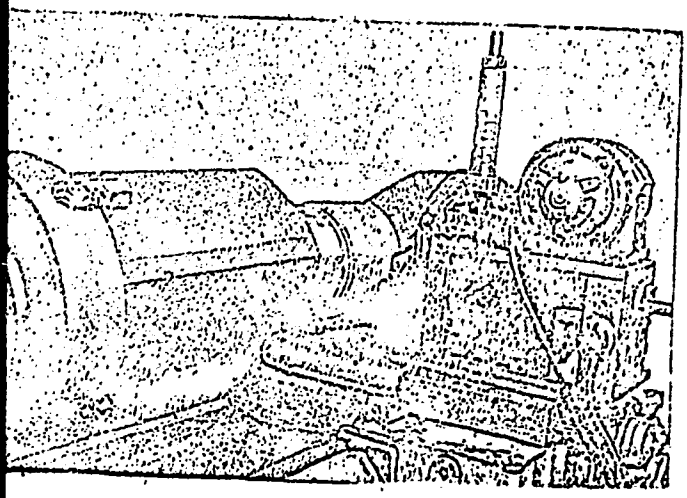

Fig. 1 - Impact producing device UP-0.25 with vibrating roller

b. General View

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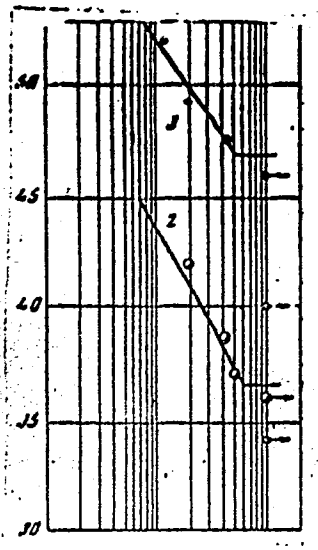
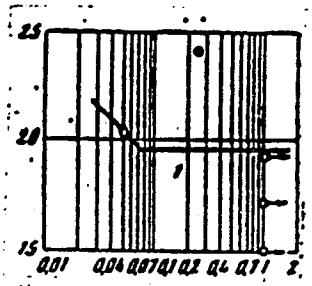
ACCESSION NR: AT 4014050

ENCLOSURE 03



a. Microstructure of thread bottom (x100)



b. Zones with different hardness at thread bottom

1 - HB = 200 kg/mm^2

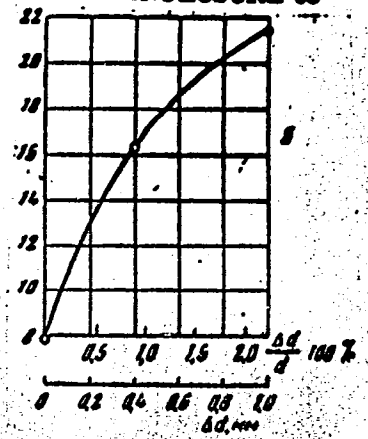
2 - HB = 190 to 200 kg/mm^2

3 - HB = 180 to 190 kg/mm^2

4 - HB = 170 to 180 kg/mm^2

5 - HB = 160 to 170 kg/mm^2

Basic metal - steel 35; 1.5 mm reduction on diameter



c. Idem.

1 - HB = 350 to 320 kg/mm^2

2 - HB = 280 kg/mm^2

Basic metal - steel 18 KhNVA; 1 mm reduction on diameter

Fig. 2. Microstructure and hardness of specimens with buttress thread UP78x12 after surface-rolling of thread bottom with vibrating roller

Card 6/6

S/129/63/000/001/001/017
E073/E535

AUTHORS: Kudryavtsev, I.V., Doctor of Technical Sciences, Professor and Sveshnikov, D.A., Engineer

TITLE: Heating of work-hardened components to improve their fatigue strength

PERIODICAL: Metallovedeniye i termicheskaya obrabotka metallov, no.1, 1963, 5-7

TEXT: The effect on fatigue strength of additional heating after work hardening was investigated. The specimens were first heat treated (holding at 900°C for 60 min, quenching in oil, tempering for 60 min at 450°C in a nitrate bath), then work-hardened by shot-peening and subsequently tempered at various temperatures. The following tests were carried out: bending of flat, 6 mm thick specimens of the spring steel 55C 2 (55S2); symmetrical torsion of 8 mm diameter rods of the steel 60C 2 (60S2); fatigue tests on coiled springs made of 41 mm diameter wire of the steel C65A (S65A). Results: the fatigue limit of work-hardened springs can be increased by 9-10% by subsequent heating. The optimum temperature for which the highest increase

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in fatigue strength is obtained depends on the type of steel, its deformation during manufacture and its conditions of operation. The highest increase in fatigue strength in respect of motor car valve springs is obtained if the additional heating temperature equals 175°C; a further increase in the heating temperature brings about a decrease in the fatigue strength and at 425°C the effect of work-hardening is entirely eliminated. There are 2 figures.

ASSOCIATIONS: TsNIITMASh
Gor'kovskiy avtomobil'nyy zavod
(Gor'kiy Automobile Works)

S/122/63/000/001/009/012
D263/D308

AUTHORS: Kudryavtsev, I.V., Doctor of Technical Sciences, Professor and Chizhik, V.N., Engineer

TITLE: Amelioration of the fatigue resistance of threaded components

PERIODICAL: Vestnik mashinostroyeniya, no. 1, 1963, 51-55

TEXT: This work, which is registered with the Komitet po delam izobreteniy i otkrytiy pri Sovete Ministrov SSSR (Committee on Inventions and Discoveries of the Council of Ministers of the USSR) presents the results of the experiments on a new method of increasing the fatigue resistance of threaded components by cold working. The device, designed by I.V. Kudryavtsev and N.A. Lopatinskiy, basically consists of burnishing rollers which are pressed into the working surface by a constant load, and subjected to additional pulsating loads. The results of the experiments on fatigue resistance under alternating extension and bending of samples having diameters of 30 - 210 mm, with various types of threads, show that

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Amelioration of the fatigue ...

strain hardening increases supporting power of threaded components 1.5 - 2 times or more, especially in the case of carbon and alloy steels; the effect of uneven load distribution on the threads under the nut is found to be negligible. There are 8 figures.

S/129/63/000/001/017/017
E193/E383

AUTHORS: Kudryavtsev, I.V., Doctor of Technical Sciences, Professor, Gulyayeva, N.A., Engineer

TITLE: Prague International Conference on the Problems of Fatigue of Materials

PERIODICAL: Metallovedeniye i termicheskaya obrabotka metallov, no.1, 1963, 56-63

TEXT: An international conference devoted to problems of fatigue of materials was held in Prague in September, 1960. The conference was attended by delegates from the Soviet Union, Czechoslovakia, Poland, Hungary, Rumania, China, East Germany, Austria, France, U.S.A., Great Britain and West Germany. The proceedings of the conference have been published. The following subjects were discussed: J. Cabelka (Czechoslovakia): the effect of the structural state on the fatigue limit of steel; A. Freudenthal (U.S.A.): the character of fatigue failures in engineering constructions; M. Klesnil (Czechoslovakia): the progress of fatigue in sorbite; S. Koczanda (Poland): the results of an electron-microscopic study of fatigue fracture of normalized

Prague International Conference ...

0.35% C steel rotating cantilever-bar test pieces; J. Němec: analysis of a large number of fatigue fractures of axles and results of laboratory experiments on similar components; I.A.Oding (USSR): diffusionless mechanism of the formation and growth of fatigue cracks; N. Thompson (Great Britain): review of work on fatigue problems conducted in Great Britain, U.S.A., Australia and other countries; P. Lukas (Czechoslovakia): quantitative analysis of phase-transformations in hardened steel under cyclic loads; B. Baranovski (Poland): the effect of tempering at 250 to 400°C on the fatigue strength of cable wire Д60А (D60A); A. Buch and J. Chodorovski (Poland): the effect of hair cracks on the fatigue strength of specimens of constructional steels 40ХМНА (40KhMNA) and 25ХНВА (25KhNVA); M.R.Hempel (West Germany): the effect of metallurgical factors on the resistance of steel to fatigue; F. Leyris (France): determination of the process of fatigue fracture of parts by analysis of the external appearance of the

Prague International Conference ....

fractured surfaces; K. Legafer (Hungary): metallographic investigation of fatigue fractures; V. Linhart (Czechoslovakia): the effect of some surface treatments on the fatigue strength of parts of various sizes; S. Nedeşan (Rumania): a study of the service life of railway carriages; G. Tauscher (East Germany): the relationship between the depth of case-hardening, thickness of the part and fatigue limit of case-hardened steel parts; M. Renay (Hungary): the effect of prolonged preliminary cyclic loading on the ductile-to-brittle transition temperature of steel; H. Wiegand (West Germany): the effect of surface layers on the fatigue strength of constructional parts; Ye.P. Unksov and I.V. Kudryavtsev (USSR): fatigue strength of steel in the regions of contact in large laminated structures; E. Jelinek (Czechoslovakia): the effect of brittleness on the life and sensitivity to overloading of constructional steels under cyclic loads; J. Koutský and J. Bužek: (Czechoslovakia): the effect of metallurgical factors and structural changes on the fatigue properties of materials for high-temperature service; I.V. Kudryavtsev (USSR): the effect of work-hardening with the aid of a vibrating

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Prague International Conference ....

roll on the fatigue strength of steel; B. Přenosil (Czechoslovakia): the effect of residual austenite on the resistance of case-hardened and nitrided steels to alternating loads; J. Sedlaček (Czechoslovakia): statistical analysis of the effect of non-metallic inclusions on the contact fatigue strength; I. Vodsedálek (Czechoslovakia): effect of the grain size on the fatigue limit of heat-resistant steels and alloys; R. Cazaud (France): some results of fatigue studies of welded joints; V. Gregor (Czechoslovakia): notes on the stability of shape of welded double-T beams; G. Gensch and G. Müller (East Germany): study of fatigue of welded parts of highway bridges; A. Neumann and G. Müller (East Germany): Study of fatigue of large welded constructions; S.D. Ponomarev (USSR): problems of calculating the fatigue strength of springs; O. Puchner (Czechoslovakia): the effect of residual stresses on the fatigue limit; S.V. Serensen (USSR): the effect of absolute dimensions and probability of fatigue fracture; G.V. Uzhik (USSR): the size effect in cyclic loading. O. Yuždinsky (Czechoslovakia): the effect of annealing on the fatigue limit of welded joints. There are 6 figures

ASSOCIATION: TsNIITMASh

Card 4/4

KUDRYAVTSEV, I.V.; RYMYNOVA, Ye.V.

Effect of work hardening on the fatigue resistance in 18KhNVA steel at high temperatures. Metalloved. i term. obr. met. no.9:33-37 S '63. (MIRA 16:10)

1. TSentral'nyy nauchno-issledovatel'skiy institut tekhnologii i mashinostroyeniya.

KUDRYAVTSEV, I.V.; MEYEROVICH, I.B.; SAVVINA, N.M.; TAFT, V.I.

Fatigue strength of shafts following nitriding and straightening. Metalloved. i term. obr. met. no.10:32-34 O '63. (MIRA 16:10)

1. TSentral'nyy nauchno-issledovatel'skiy institut tekhnologii i mashinostroyeniya i zavod "Russkiy dizel'."

KUDRYAVTSEV, I.V., doktor tekhn.nauk, prof.; CHIZHIK, V.N., inzh.

Increasing the fatigue strength of threaded parts. Vest. mashinostr. 43 no.1:51-55 Ja '63. (MIRA 16:2)
(Screw threads--Fatigue)

SHKOL'NIK, L.M.; SHAKHOV, V.I.; KUDRYAVTSEV, I.V., doktor tekhn. nauk, prof., retsenzent; KADILIN, V.P., inzh., retsenzent; FRID, L.I., inzh., red.

[Technology and equipment for hardening and finishing parts by burnishing] Tekhnologiia i prisposobleniia dlia uprochneniia i otdelki detalei nakatyvaniem. Moskva, Mashinostroenie, 1964. 183 p. (MIRA 17:6)

L [illegible] EWT(m)/EWP(w)/EPF(c)/EWA(d)/T/EWP(t)/EWP(b) JD/WB

ACCESSION NR: AR5014021 UR/0277/65/000/003/0004/0004
539.434

23
B

SOURCE: Ref. zh. Mashinostroitel'nyye materialy, konstruktsii i raschet detaley mashin. Gidroprivod, Otdel'nyy vypusk, Abs. 3.48.21

AUTHOR: Kudryavtsev, I. V.; Savvina, N. M.; Burmistrova, L. N.

TITLE: Fatigue strength in the contact area

CITED SOURCE: Sb. Korrozion. ustalost' metallov. L'vov, Kamenyar, 1964, 137-154

TOPIC TAGS: fatigue strength, steel fatigue, contact fatigue, stress concentration, surface erosion, fritting corrosion

TRANSLATION: The study concerned the causes of the deterioration in fatigue strength of steel parts in contact areas. The combined effects of stress concentrations, surface erosion caused by the action of the thermoelectric current, mechanical abrasion of the surface and fritting corrosion were found to comprise the cause of lower fatigue strength of steel parts in areas of contact (embedding). A rough-rolled, unmachined surface reduces the endurance limit from 15 to 24%, as compared to smooth samples, for all tested steels, shapes and dimensions of sam-

Card 1/2

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ACCESSION NR: AR5014021

ples. The fatigue strength of plates or shafts with a rough or pre-corroded surface was higher than for machined samples in cyclic bending with contacting of coupled parts. Bibl. with 7 titles.

SUB CODE: MM ENCL: 00

Card 2/2

ACCESSION NR: AP4030667 S/0129/64/000/004/0032/0033

AUTHOR: Kudryavtsev, I. V.; Savvina, N. M.

TITLE: Influence of ten years storage on fatigue strength of spare parts with residual stresses

SOURCE: Metallovedeniye i termicheskaya obrabotka metallov, no. 4, 1964, 32-33

TOPIC TAGS: cold hardening durability, residual stress durability, fatigue limit, steel

ABSTRACT: The purpose of this work was a study of changing endurance limit (fatigue) of notched cold hardened samples due to prolonged storage (10 years). Rods of type 40 steel were surface rolled, increasing their surface hardness from HV 187 to 240 and creating considerable compressing stresses at the surface (50-60 kg/mm^2). They were notched with a cutter after rolling. The fatigue of these samples was compared with that of other samples which were not cold hardened. The samples were tested for fatigue every year for ten years. It was found that increased strength of samples with induced residuary stresses does not change during protracted storage at normal temperatures. Orig. art. has: two figures, no

Card 1/2

ACCESSION NR: AP4030667

formulas and no tables.

ASSOCIATION: TsNIITMASH (Central Scientific Research Institute of Technical Machinebuilding)

SUBMITTED: 00 ENCL: 00

SUB CODE: MM NO REF SOV: 002 OTHER: 000

Card 2/2

KUDRYAVTSEV, I.V., prof., doktor tekhn. nauk

V.S. Ivanov's "Fatigue failure of metals". Zav. lab. 30 no.6: 768 '64 (MIRA 17:8)

KUDRYAVTSEV, I.V., doktor tekhn. nauk, prof.; ZHUK, Ye.I., inzh.

Investigating the fatigue resistance of cast-iron crankshafts of a diesel locomotive engine. Vest. mashinostr. 44 no.6:46-50 Je '64. (MIRA 17:8)

KUDRYAVTSEV, I.V., doktor tekhn. nauk, prof.; ANDRENKO, V.M., inzh.

Experimental determination of the fatigue resistance of rotating large steel shafts. Vest. mashinostr. 44 no.6:50-54 Je '64. (MIRA 17:8)

KUDRYAVTSEV, I. V.; CHIZHIK, V. N. (Moscow)

"Fatigue studies of marine thread joints."

report submitted for 2nd Conf, Dimensioning & Strength Calculations, Budapest, 5-10 Oct 1965.

ACCESSION NR: AP5002937 0002/0007

AUTHOR: Kudryavtsev, I.V.; Rymynova, V.V.

TITLE: Influence of steel structure and cold working on its sensitivity to notching when subjected to cyclic loads

SOURCE: Metallovedeniye i termicheskaya obrabotka metallov, no. 1, 1965, 2-7, and top half of insert facing p. 24

TOPIC TAGS: steel notching, steel cold working, steel fatigue, steel structure, steel toughness, steel 30KhGSA, steel 1Kh18N9T, steel 2Kh13

ABSTRACT: While it is generally accepted that the sensitivity of alloy steels to notching increases with steel strength, it is also known that cold hardening in the form of swaging, shot peening or stamping considerably [illegible] knowledge prompted that present study. [illegible] 30KhGSA, 1Kh18N9T and 2Kh13 were used. [illegible] For tests the U-12 machine was used. Data [illegible] are consolidated [illegible] The following conclusions are the results [illegible] 1. The greatest sensitivity to notching under cyclic loads is shown by steels of medium strength (HRC 25-40). With increasing strength, the sensitivity to notching decreases. 2. The above

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ACCESSION NR: AP5002937

property is explained by the different hardenability of steels by a succession of cyclic loads. 3. In steels having a tendency to age as a result of cold working, sensitivity to notching abruptly declines. In steels of medium strength as well as in steels with austenitic structure, cold working in depth increases sensitivity to notching. 4. These conclusions apply to tests using relatively small sample [illegible] and to symmetric loading cycles. The application of the above [illegible] especially large pieces and other (nonsymmetric) loading cycles requires additional experimentation. Orig. art. has: 4 figures, 2 formulas and 1 table.

ASSOCIATION: TsNIITMASh

SUBMITTED: 00 ENCL: 00 SUB CODE: MM

NO REF SOV: 005 OTHER: 001

Card 2/2

ADAMESKU, R.A.; UFIMTSEVA, M.P.; KUDRYAVTSEV, I.P.; GEL'D, P.V.

Texture formation furing the annealing of strongly deformed silicon iron. Izv. vys. ucheb. zav.; chern. met. 8 no.5:133-139 '65. (MIRA 18:5)

1. Ural'skiy politekhnicheskiy institut.

ADAMESKU, R.A.; KUDRYAVTSEV, I.P.

Texture formation during the annealing of hot-rolled silicon iron. Fiz. met. i metalloved. 19 no.1:83-87 Ja '65. (MIRA 18:4)

1. Ural'skiy politekhnicheskiy institut imeni Kirova.

ADAMESKU, R.A.; KUDRYAVTSEV, I.P.; GOLUBEVA, O.A.; GEL'D, P.V.

Certain characteristics of the formation of recrystallization textures in cold-rolled silicon iron with a high degree of deformation. Fiz. met. i metalloved. 19 no.3:432-438 Mr '65. (MIRA 18:4)

1. Ural'skiy politekhnicheskiy institut imeni Kirova.

L 52592-65 EWT(d)/EPA(s)-2/EWT(m)/EWP(w)/EWP(c)/EWA(d)/EWP(v)/T/
EWP(t)/EWP(k)/EWP(h)/EWP(z)/EWP(b)/EWP(l)/EWA(c) Pf-4 EM/MJW/JD/HM

ACCESSION NR: AP5007074 S/0122/65/000/002/0047/0052

AUTHORS: Kudryavtsev, I. V. (Doctor of technical sciences, Professor); Naumchenkov, N. Ya. (Candidate of technical sciences); Timofeyev, M. M. (Candidate of technical sciences)

TITLE: Investigation of the endurance of composite gas turbine rotors

SOURCE: Vestnik mashinostroyeniya, no. 2, 1965, 47-52

TOPIC TAGS: composite turbine rotor, fatigue, welding/ TsT 28 welding electrode, TsT 31 welding electrode, U 200 fatigue tester, EI395 steel

ABSTRACT: To investigate the endurance of composite rotors, large rotor samples made of two nickel alloy EI765(KhN70VMYuT) disks and two austenitic steel EI395 end [illegible] 1 on the Enclosure) and small hollow and solid cylindrical specimens [illegible] 2 on the Enclosure) of the component metals were fatigue tested at room temperature undergoing various heat treatments before and after welding. Welding electrodes TsT-28 (with weld metal Kh15N60M15V4) and TsT-31 (weld metal [illegible]) were used with the weld geometries shown in Fig. 3 on the Enclosure, [illegible] welding inserts of 1Kh/8N9 steel (Fig. 3a,c) and wire inserts of EP367 [illegible]. The symmetrical bending fatigue tests on the large samples were performed on apparatus U-200 at 1600-2100 cpm and on the small tubular and solid

Card 1/2

L 52592-65

ACCESSION NR: AP5007074

specimens on testing devices UIPM-20 and YaBM respectively. It was found that the endurance limit of the small tubular samples was 16.5, 10.5 and 16.5 kg/mm^2 for unwelded specimens and specimens with welds 3c and 3d respectively. For the solid specimens the endurance limit was as follows: EI765-2a = 24.5 kg/mm^2, 2b = 21.5 (at 20C); EI395-2a = 26.5, 2b = 13.5; welded joint - 2c: EI765 to EI765 = 21.5; EI765 to EI395 = 25.5 (at 20C). The results with large specimens were as follows: specimens 1a (with a clearance under the weld type 3b) failed after $1.8 \cdot 10^6$ - $2 \cdot 10^7$ cycles at a stress of only 3.4 - 5.1 kg/mm^2; specimens 1b with weld 3a failed at 12 kg/mm^2 (M = 603600 kg cm) after 50 million cycles (10 million each at 3.4, 6.5, 8 and 10 kg/mm^2); with weld 3b at 503 000 kg cm after 40 million cycles. Comparison with a composite rotor joined with 30 studs around the perimeter showed the welded seams to be far superior. The best heat treatment was recommended as follows: before welding - EI765: quenching from 1150C (3 hrs) in oil; EI395: from 1160C (3 hrs) in H_2O; after welding - heating to 550C at 150C/hr, hold for 1 hr, heat to 950C, hold for 2 hrs, cooling to 800C, hold for 20 hrs and final cooling. Orig. art. has: 8 figures and 2 tables.

ASSOCIATION: TsNIITMASh (TsNIITMASh)

SUBMITTED: 00 ENCL: 03 SUB CODE: PR

NO REF SOV: 005 OTHER: 000

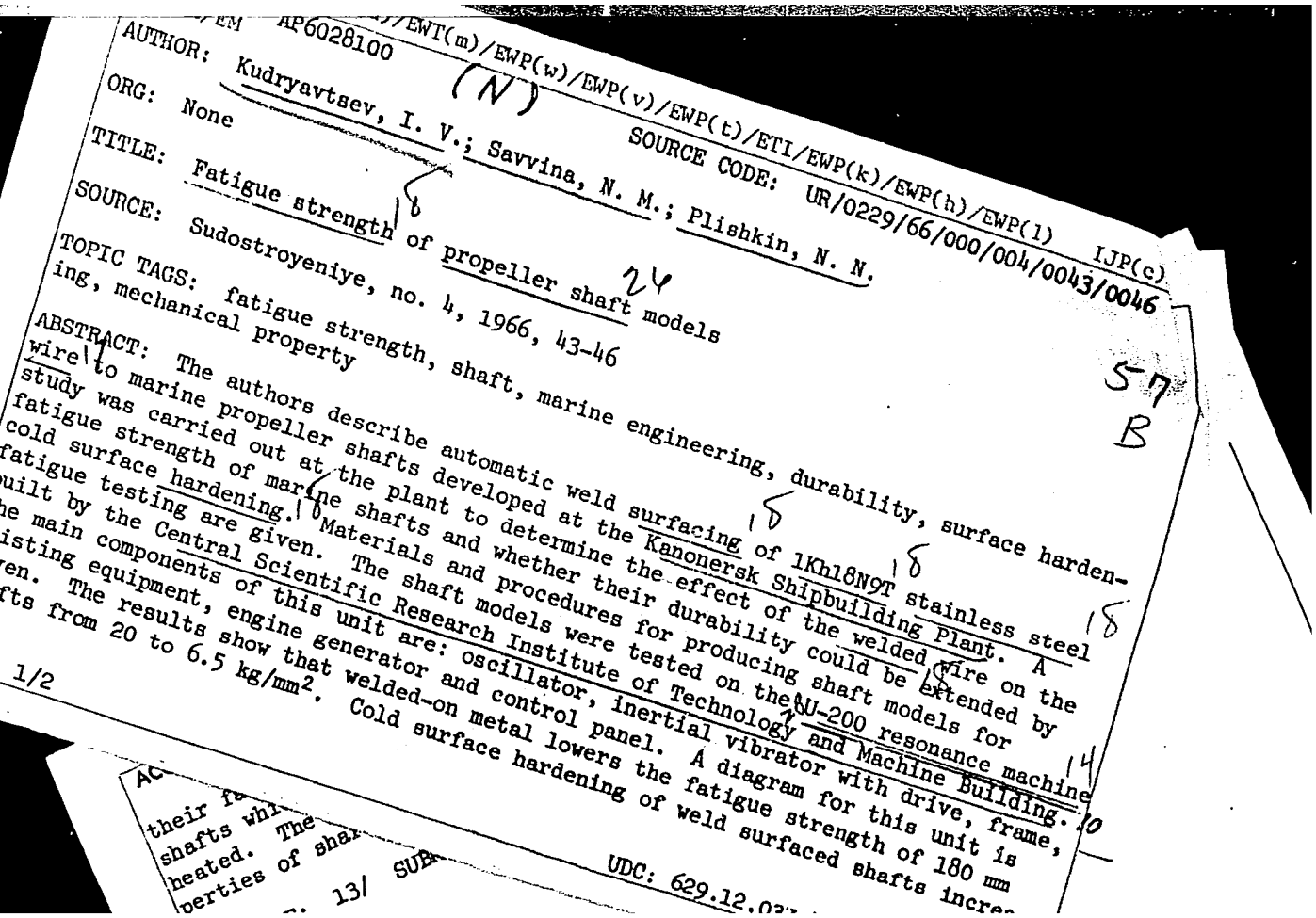
Card 2/5

KUDRYAVTSEV, I.V., doktor tekhn.nauk, prof.

Reviews and bibliography. Vest.mashinostr. 45 no.2:90-91 F '65.
(MIRA 18:4)

KUDRYAVTSEV, I.V., doktor tekhn.nauk, prof.; BURMISTROVA, L.N., inzh.

Selecting the longitudinal feed in roller burnishing of axles and shafts. Vest.mashinostr. 45 no.3:62-63 Mr '65. (MIRA 18:4)



AP6028100 (N) SOURCE CODE: UR/0229/66/000/004/0043/0046

AUTHOR: Kudryavtsev, I. V.; Savvina, N. M.; Plishkin, N. N.

ORG: None

TITLE: Fatigue strength of propeller shaft models

SOURCE: Sudostroyeniye, no. 4, 1966, 43-46

TOPIC TAGS: fatigue strength, shaft, marine engineering, durability, surface hardening, mechanical property

ABSTRACT: The authors describe automatic weld surfacing of 1Kh18N9T stainless steel wire on the Kanonersk Shipbuilding Plant. A study was carried out at the plant to determine the effect of the welded wire to marine propeller shafts and whether their durability could be extended by fatigue strength of marine shafts and procedures for producing shaft models for cold surface hardening. Materials and procedures for producing shaft models were tested on the MU-200 resonance machine fatigue testing are given. The shaft models were tested on the MU-200 resonance machine built by the Central Scientific Research Institute of Technology and Machine Building. he main components of this unit are: oscillator, inertial vibrator with drive, frame, isting equipment, engine generator and control panel. A diagram for this unit is en. The results show that welded-on metal lowers the fatigue strength of 180 mm fts from 20 to 6.5 kg/mm². Cold surface hardening of weld surfaced shafts incre

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UDC: 629.12.03

L 11930-66 EWT(d)/EWT(m)/EWP(w)/EWA(d)/EWP(v)/T/EWP(t)/EWP(k)/EWP(h)/EWP(z)
ACC NR: AT5028251 EWP(b)/EWP(l)/EWA(h) SOURCE CODE: UR/2590/65/108/000/0075/0081
EWA(c) MJW/JD/HW

AUTHORS: Kudryavtsev, I. V. (Doctor of technical sciences, Professor); Rymynova, Ye. V. (Engineer)

ORG: Central Scientific Research Institute for Technology and Machine Construction, Moscow (Tsentral'nyy nauchno-issledovatel'skiy institut tekhnologii i mashinostroyeniya)

TITLE: Effects of surface cold working on the fatigue strength of 18Kh2N4VA steel at high temperatures

SOURCE: Moscow. Tsentral'nyy nauchno-issledovatel'skiy institut tekhnologii i mashinostroyeniya. Trudy, v. 108, 1965. Povysheniye dolgovechnosti detaley mashin metodom poverkhnostnogo naklepa (Increasing the durability of machine parts by the surface riveting method), 75-81

TOPIC TAGS: metal property, metal joining, fatigue strength, steel, surface hardening, high temperature effect, fatigue test, solid mechanical property, cold working/18Kh2N4VA steel

ABSTRACT: To determine the effects of surface hardening on the fatigue strength of 18Kh2N4VA steel at high temperatures, smooth, notched, and press-fitted specimens were fatigue-tested at room temperature, at 200C and 400C in an 88M fatigue tester of TsNIITMASh construction. The mechanical properties of the steel were $\sigma_{-1} =$

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L 11930-66

ACC NR: AT5028251

143.4 kg/mm^2, σ_T = 117 kg/mm^2, δ_T = 12.7%, a_n = 7.8 kgm/cm^2 at 20C; 130, 108, 13.6, 4.5 at 200C, and 126, 108, 15.3, 4.6 at 400C respectively (HB 380—390). The results of the experiments are shown graphically. The surface cold working was performed with a three-roller device at the following rolling parameters: load on roller - 185 kg; feed - 0.12 mm/rev; 4.65 m/min; roller diameter 20 mm; roller profile radius - 6 mm; 1 pass. From the results it was concluded that surface cold working of 18Kh2N4VA steel is effective in increasing the fatigue strength at high temperatures. Orig. art. has: 4 figures and 4 tables.

SUB CODE: 11/ SUBM DATE: none/ SOV REF: 006

Card 2/2

L 11929-66 EWT(d)/EWT(m)/EWP(w)/EWA(d)/EWP(v)/T/EWP(t)/EWP(k)/EWP(h)/EWP(z)/EWP(b)
ACC NR: AT5028252 EWP(l)/EWA(c) SOURCE CODE: UR/2590/65/108/000/0087/0095
MJW/JD/HM/EM

AUTHORS: Kudryavtsev, I. V. (Doctor of technical sciences, Professor); Aleksandrov, B. I. (Candidate of technical sciences)

ORG: Central Scientific Research Institute for Technology and Machine Construction, Moscow (Tsentral'nyy nauchno-issledovatel'skiy institut tekhnologii i mashinostroyeniya)

TITLE: High temperature fatigue strength of 1Kh13 steel in specimens with motionless joints

SOURCE: Moscow. Tsentral'nyy nauchno-issledovatel'skiy institut tekhnologii i mashinostroyeniya. Trudy. v. 108, 1965. Povysheniye dolgovechnosti detaley mashin metodom poverkhnostnogo naklepa (Increasing the durability of machine parts by the surface riveting method), 87-95

TOPIC TAGS: metal joining, metal property, fatigue strength, steel, metal heat treatment, metal test, metal hardening, metal stress/ 1Kh13 steel

ABSTRACT: The high temperature fatigue strength of 1Kh13 steel specimens with press-fitted, soldered, and welded joints was determined experimentally and compared with the fatigue strength of solid and notched specimens. Hot-rolled 42-mm diameter rods were forged to 22-mm diameter and heat treated to produce HB220—230 hardness. The solid, notched, and press-fitted specimens were tested at 200C and 400C, while

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L 11929-66

ACC NR: AT5028252

the soldered and welded specimens were tested only at 200C on a Ya8 fatigue tester of the TsNIITMASh (at 2870 cpm). Press fit forces of 1200—1400 kg were required, resulting in a compressive stress of 15.5—30 kg/mm^2 in the rod and a tensile stress of 24—50 kg/mm^2 in the sleeve. These stresses should decrease by 5% at 200C and by 13% at 400C. The results of the experiments at 200C are shown in Fig. 1. The following conclusions are drawn: press-fitted, soldered, and welded joints substantially decrease the fatigue strength of 1Kh13 steel at 200C and 400C; peening of press-fit surfaces produces the same fatigue strength as specimens without stress concentrators; fatigue strength of soldered and welded joints was approximately the same.

Card 2/3

L 11929-66
ACC NR: AT5028252

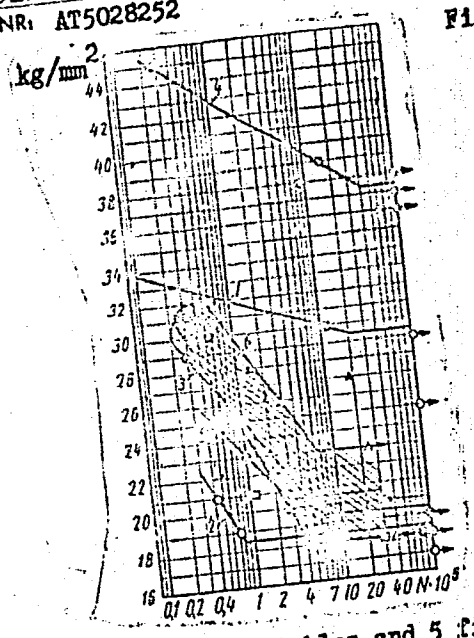

Fig. 1. Fatigue strength at 200C: ○ (curve 1) - smooth specimens;
○ (curve 2) - notched;
◑ (curve 3) - press-fitted;
● (curve 4) - peened, press-fitted;
■ (curve 5) - welded;
▲ (curve 6) - soldered.

Orig. art. has: 3 tables and 5 figures.

SUB CODE: 11/ SUBM DATE: none/ SOV REF: 002

Card 3/3

L 11793-66 EWT(d)/EWT(m)/EWP(w)/EWP(c)/EWA(d)/EWP(v)/T/EWP(t)/ETI(k)
ACC NR: AT6000063 EWP(1)/EWA(c)/ETC(m) SOURCE CODE: UR/0000/65/000/000/0089/0092
MJW/JD/WW/HW/GS

AUTHORS: Kudryavtsev, I. V.; Sveshnikov, D. A.

ORG: Conference on Strengthening Machine Parts, Moscow (Soveshchaniye po uprochneniyu detaley mashin)

TITLE: Heating of parts strengthened by cold working for increasing their fatigue strength

SOURCE: Soveshchaniye po uprochneniyu detaley mashin. Moscow, 1962. Uprochneniye detaley mashin mekhanicheskim naklepyvaniyem (Work Hardening of machine parts); trudy soveshchaniya. Moscow, Izd-vo Nauka, 1965, 89-92

TOPIC TAGS: temperature, metal, cold working, steel, fatigue strength, fatigue test, cold rolling, metal heat treatment, solid mechanical property

ABSTRACT: The effect of heating on cold-worked metal machine parts was studied. A description of the experimental part of the study is preceded by a brief review of pertinent literature. It is noted that recent findings indicate that in most cases the heating of cold-formed steel parts is accompanied by an increase in their fatigue strength. This investigation was directed towards determining the optimal temperature to be used in heat-treating of such parts. Optimal temperature is said to be dependent upon the kind of material, the type of deformation, degree and depth of cold-treatment, etc. Two types of specimens were prepared: planar IMS-2

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L 11793-66

ACC NR: AT6000063

(55S2 steel) specimens, 6.0 mm thick, were prepared for shear tests, and circular K-3 (60S2 steel) specimens, 8.0 mm in diameter for symmetrical torsion testing. The thermal treatment applied consisted of 60-minute tempering at 900C, quenching in oil, and a 60-minute nitrate bath at 450C. Results indicate that with increasing temperature of cold-worked specimens their fatigue limit increases, reaching a maximum shear strength at 300C, and a maximum torsional strength at 200C. In both cases the heat treatment results in a 10% strength increase, and further temperature increases cause the strength limits to drop sharply. Additional fatigue tests were performed on the valve lift springs used on the Pobeda automobile. The results are plotted and show that a maximum fatigue strength is reached with a secondary heat treatment at 175C. Testing was performed according to the method of L. Locati (La Metallurgia Italiana, 1955, No. 9). A discussion of the relative importance of size, shape, and density of the materials tested is given. Orig. art. has: 5 figures.

SUB CODE: 11/ SUBM DATE: 24Apr65/ ORIG REF: 008/ OTH REF: 003

HW

Card 2/2

L 10314-66 EWT(d)/EWT(m)/EWP(v)/EWP(t)/EWP(k)/EWP(b)/EWP(l)/EWA(c) JD/HW

ACC NR: AT5028253 SOURCE CODE: UR/2590/65/108/000/0182/0196

AUTHORS: Kudryavtsev, I. V. (Doctor of technical sciences); Naumova, T. V. (Engineer) 36 33 B+1

ORG: Central Scientific Research Institute of Technology and Machine Construction (Tsentral'nyy nauchno-issledovatel'skiy institut tekhnologii i mashinostroyeniya)

TITLE: Devices for increasing machine part durability through surface cold working by the hammering method (with a riveter)

SOURCE: Moscow. Tsentral'nyy nauchno-issledovatel'skiy institut tekhnologii i mashinostroyeniya. Trudy, v. 108, 1965. Povysheniye dolgovechnosti detaley mashin metodom poverkhostnogo naklepa (Increasing the durability of machine parts by the surface riveting method). 182-196

TOPIC TAGS: cold working, surface hardening, riveting/ UP 0.5 riveter, 5UP 0.5 riveter, UP 0.25 riveter, UP 7 riveter, UP 7M riveter, ChM 3 riveter, UVP-1 riveting attachment

ABSTRACT: Surface cold working devices using the hammering method to harden surfaces 1—30 mm deep are described. The UP-0.5 (see Fig. 1) has a riveter driven

Card 1/3

L 10314-66

ACC NR: AT5028253

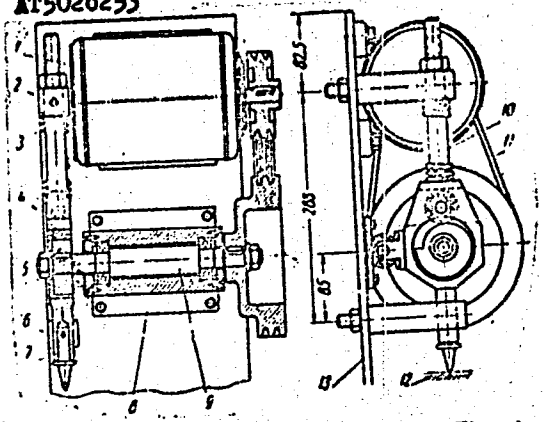

Fig. 1. UP-0.5 riveter.

at 700--1500 cpm by an electric motor. The impact energy of 0.5 kg affects the surface to a depth of 3 mm. The 5UP-0.5 is similar to the UP-0.5 except that it has 5 riveting heads which raise its capacity to ≈ 1 m^2/hr. The UP-0.25 is used primarily to cold work fillets with 0.25-kg impact energy (1800--2800 cpm). The UP-7 is a single-spindle riveter similar to the UP-0.5 but has an impact energy of 7.5 kg at 600 cpm (cold working to 14--mm depth). The UP-7M has a spring preloading mechanism which permits adjustment of impact energy. A four-spindle

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riveter using UP-0.5 spring-loaded riveters was developed by NKMZ and is used to cold work large plates (up to 1700 mm wide). A pneumatic riveter for cold working of fillets on large shafts is also used by NKMZ. It has 3.3-kg impact energy at 1150 cpm and can handle shafts of 25--80 mm diameter. Another pneumatic NKMZ riveter used for perimeter cold working of large plates has 5.4--kg impacts at 1200 cpm. Pneumatic riveter ChM-3 with vibrating roller for cold working threads and fillets has 4.5-kg impacts at 1250 cpm from a MO-10 pneumatic drive operating at 5 kg/cm^2. Attachments UVP-1 and UVP-2 for internal threads and surfaces produce 2.1- and 4.2-kg impacts at 1500 cpm from a KE-19 pneumatic drive. The mechanical riveter proposed by engineer M. I. Kuz'min, the NKMZ rotary riveter, and the rotary riveter proposed by the Kharkov factory im. Malyshev use similar operating principles but no specifications are given. Orig. art. has: 14 figures and 7 tables.

SUB CODE: 13/ SUBM DATE: none/ ORIG REF: 013

[illegible], I.V.; [illegible], A.G.

Review of symposium of the Prague Scientific Research Institute of Materials and Technology. Metalloved. i term. obr. met. no.8: 60-64 Ag '65. (MIRA 18:9)

L 6986-66 EPF(a)/EWT(m)/EWP(e)/EWP(b)/T/EWA(d)/EWP(w)/EWP(t) MJW/JD/WB

ACC NR: AP5022407 SOURCE CODE: UR/0369/65/000/004/0487/0493

63
57
B

AUTHOR: Kudryavtsev, I. V.; Chizhik, V. N.

ORG: TsNIITMASh, Moscow

TITLE: Investigation of endurance of threaded joints in sea water

SOURCE: Fiziko-khimicheskaya mekhanika materialov, no. 4, 1965, 487-493

TOPIC TAGS: corrosion resistance, endurance test, sea water corrosion, cold working

ABSTRACT: Effect of zinc plating and plastic deformation on corrosion resistance in sea water (3% NaCl solution) of the threaded joints of 40Kh-, 40KhNMA-, 18KhNVA-, and NN-3B steels was studied. The corrosion resistance of threaded joints (M30 × 3.5) subjected to alternating symmetric-cycle bending is given in fig. 1. The dependence of the endurance limits of steel threaded joints (M30 × 3.5) upon the degree of cold working (expressed as reduction in inner diameter of nut's hole in mm, Δd, or percent, $\Delta d/d$) is given in fig. 2. The endurance limits of joints (bolt - nut) of all four types of steel in sea water under alternating symmetric-cycle bending (10×10^6 cycles) varied within 12-14 kg/mm^2. The cold working of the

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L 6986-66

ACC NR: AP5022407

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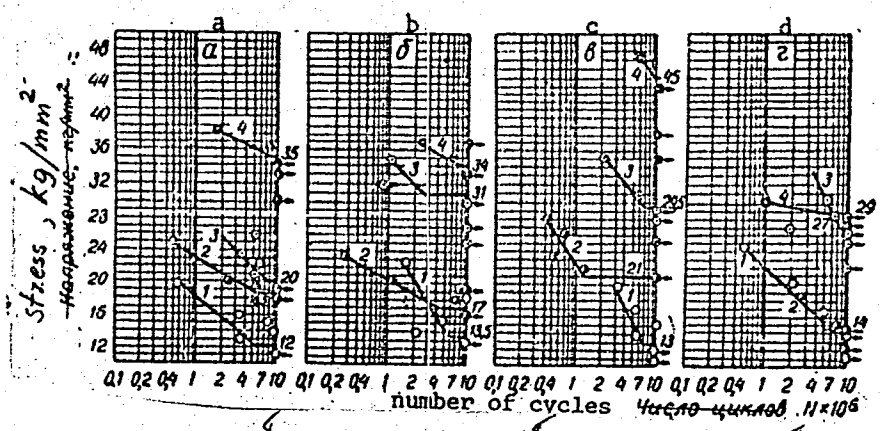

Fig. 1. a - 40Kh steel; b - 40KhNMA steel; c - 18KhNVA steel; d - NN-3B steel; 1 - thread cut with a knife; 2 - a zinc plated thread; 3 - a worked thread; 4 - a cold worked and zinc plated thread.

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L 6986-66

ACC NR: AP5022407

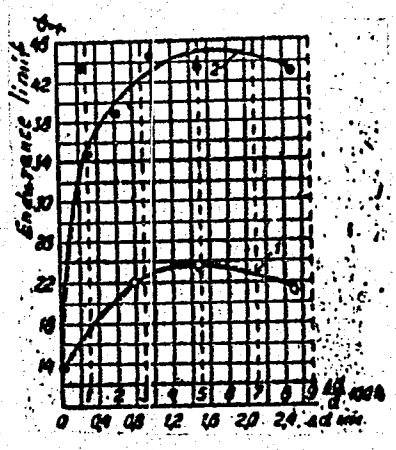

Fig. 2. 1 - standard 45 steel;
2 - the heat treated 45 steel.

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6986-66

ACC NR: AP5022407

2

threaded holes resulted always in a 67-130% increase in the endurance limits of joints in sea water. It was particularly effective in the case of 18KhNVA steel. The zinc plating increased the endurance limits of the 40Kh, 40KhNMA, and 18KhNVA steels but proved ineffective in the case of NN-3B stainless steel. In general, the cold working gave greater improvements than the zinc plating. A combination treatment, cold working of the nut holes and zinc plating of the bolts proved most effective; with all four types of steels, the endurance limits of the joints increased by 107-250% and both the salt concentration and the nature of corrosive medium did not have any effect on the wear resistance of the joint. Zinc plating of bolts made of NN-3B steel did not improve corrosion resistance. The zinc plating of the cold worked nuts having either cutting threads or ordinary threads did not have any effect on the endurance limits. Tests on 18KhNVA steel subjected to oscillating axial stretching confirmed high effectiveness of the cold surface working on the steel joint strength. Orig. art. has: 7 figures, 2 tables.

SUB CODE: MM/ SUBM DATE: 11Jan65/ ORIG REF: 001/ OTH REF: 000

Card 4/4 nda

CHUDNOVSKIY, A.D., inzh.; KUDRYAVTSEV, I.V., doktor tekhn. nauk, prof.

Increasing carrying capacity of low-carbon steel vessels under conditions of small-cycle internal pressure loading. Vest. mashinostr. 45 no.7:7-12 Jl '65. (MIRA 18:10)

L 63832-65 EWT(d)/EWT(m)/EWP(w)/EWP(i)/EWA(d)/EWP(t)/T/EWP(k)/EWP(z)/EWP(b)
ACCESSION NR: AP5018669 JD/WW/EM UR/0122/65/000/007/0007/0012
621.165.2.004.6

AUTHORS: Chudnovskiy, A. D. (Engineer); Kudryavtsev, I. V. (Doctor of technical sciences, Professor)

TITLE: On increasing the strength of low carbon steel pressure vessels subjected to slow cyclic loadings

SOURCE: Vestnik mashinostroyeniya, no. 7, 1965, 7-12

TOPIC TAGS: pressure vessel, cyclic load, tensile stress, yield stress, low carbon steel

ABSTRACT: In actual service pressure vessels are often subjected to fluctuating stresses; therefore, stress calculations based on static loads alone are not reliable. The object of this investigation was to correlate the effects of static and of pulsating loads. The test specimen and its stress diagram are shown in Fig. 1 on the Enclosure (b_t is the circumferential and b_z the longitudinal stress). Seamless tubing was used for the cylindrical part, and the tensile strength of its material was determined by preliminary tests. Four variations of the specimen, shown in Fig. 2 on the Enclosure, are: a- plain, b- grooved and welded, c- cut and

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L 63832-65

ACCESSION NR: AP5016669

5

welded, and d- notched. The fluctuating stress proceeded at a rate of 10 cycles per minute. Static loads resulted in longitudinal cracks (even in the notched sample), while cyclic loading sometimes resulted in cracks 90° to the former ones, occurring at stresses below the yield point. This fact may be explained by the cumulative deformations. The investigation indicates the importance of avoiding all stress concentrations. The welds must be made through the whole thickness of the material. The authors recommend annealing at 600C and superficial cold working by peening. Orig. art. has: 5 figures, 2 graphs, and 3 tables.

ASSOCIATION: none

SUBMITTED: 00 ENCL: 02 SUB CODE: MM, AS

NO REF SOV: 009 OTHER: 000

Card 2/4

L 63832-65

ACCESSION NR: AP5018669

ENCLOSURE: 01

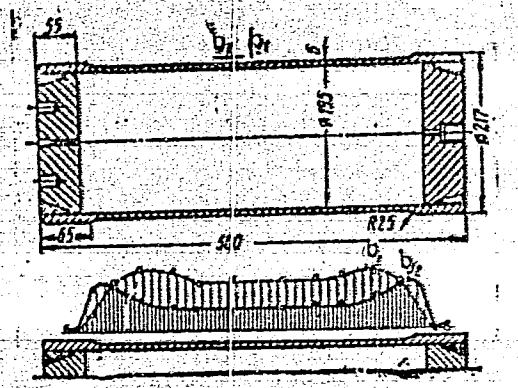

Fig. 1

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L 63832-65

ACCESSION NR: AP5018669

ENCLOSURE: 02

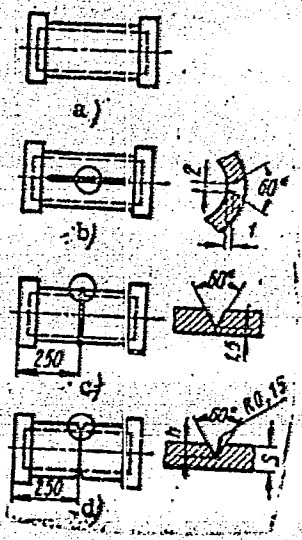

Fig. 2

Card 4/4

CHALIDZE, I.M., inzhener; UMANSKIY, B.Z., inzhener; KUDRYAVTSEV, K.A., inzhener.

Bratsk Hydroelectric Power Station. Elektrichestvo no.2:5-8 F '56. (MLRA 9:5)

1. Moskovskoye otdeleniye Gidroenergoproyekta.
(Bratsk Hydroelectric Power Station)

KUDRYAVTSEV, K.A.

Estimating veneer raw materials. Les. prom. 13 no.3:17-18 (MIRA 17:7)
Mr. '64.

1. Povolzhskiy lesotekhnicheskiy institut.

KUDRYAVTSEV, Konstantin Aleksandrovich, dots.; DVORETSKIY, M.L., red.

[Average values of taper and volume of round lumber] Velichiny srednego sbega i ob"emov kruglykh lesomaterialov. Ioshkar-Ola, Povolzhskii lesotekhn. in-t im. M.Gor'kogo, 1962. 20 p. (MIRA 17:7)

KUDRYAVTSEV, K. A.

"The Relationship Between the Length of Life of the Secondary Scion of a Simple Pine Tree (Pinus Silvestris L.) and the Natural Length of Life," Dokl. AN SSSR, 67, No.5, 1949

Povolzhskiy Forestry Tech. Inst. im. A. M. Gor'kiy, Yoshkar-Ola

KUDRYAVTSEV, K.A.

Birch; Afforestation

Process of restoration of birch planting. Dokl.AN SSSR 82 no. 6:997-1000 F' 52.
Porolzhskiy Lesotekhnicheskiy Institutm. M. Gor'kogo red. 23 March 1951

Monthly List of Russian Accessions, Library of Congress, July 1952 Unclassified

KUDRYAVTSEV, K. A.

"Biological Features of the Restoration of the Birch Tree in Connection With Changeable Species." Cand Agr Sci, Forestry Inst, Acad Sci USSR, 25 Feb 54. Dissertation (Vechernyaya Moskva Moscow, 15 Feb 1954)

SO: SUM 186, 19 Aug 1954

S/135/61/000/004/010/012
A006/A101

AUTHORS: Andrianov, K. I., Supereko, O. D., Nikolayeva, L. I., Kudryavtsev K. V. Yemel'yanenko, N. L., Engineers

TITLE: Ceramic Nozzles of the A-547r Semi-Automatic Machine for Welding in Carbon Dioxide

PERIODICAL: Svarochnoye proizvodstvo, 1961, No. 4, pp. 37 - 38

TEXT: Welding in carbon dioxide with consumable electrode is used at the Chelyabinsk Tractor Plant for joining tractor parts on the A-547r semi-automatic machine, where the gas flow is directed by a chromeplated brass nozzle (Fig. 1), placed on the rubber housing of the burner tip. The use of this nozzle presents however, a series of deficiencies, such as short-circuits of the welding current; sticking of metal splashings to the internal nozzle surface, and short service life of the nozzle. The laboratory of mineral ceramics at the Plant developed ceramic nozzles to replace the chrome-plated brass nozzles, prepared in a metallic mold by press-forming from a ceramic mass of 12 - 14% moisture. The components of the ceramic material were dried, crushed, screened, and mixed during 8 h. The material was then wetted with water to 28 - 30% for

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Ceramic Nozzles of the A-547r Semi-Automatic Machine for Welding in Carbon Dioxide

seven days and then molded. The molded nozzles were dried at room temperature and roasted in an electric furnace. Ceramic nozzles of the following compositions were manufactured by the described technology:

Designation of materials	Composition in % of the mass					
	I	II	III	IV	V	
Talcum chlorite	80	70	60	-	-	
Refractory clay	20	30	40	15	20	
Quartz	-	-	-	20	15	
Fluorspar	-	-	-	30	25	
Porcelain waste	-	-	-	10	35	
Kaolin	-	-	-	25	5	

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Ceramic Nozzles of the A-547r Semi-Automatic Machine for Welding in Carbon Dioxide

Talcum-chlorite containing nozzles were roasted according to graph 3. Tests performed with experimental ceramic nozzles proved satisfactory. The replacing of brass nozzles by the new ceramic ones presents the following advantages: the possibility of a contact between the nozzle and the part to be welded is excluded the durability of nozzles is raised by a factor of 14 - 16; scare chrome-plated brass is replaced by cheap ceramic material; labor consuming processes of manufacturing the nozzles are substituted by advanced press forming methods, eliminating subsequent mechanical treatment; the time of exchanging and cleaning the nozzles from metal splashings is considerably reduced. There are 1 table and 4 figures.

ASSOCIATION: Chelyabinskiy traktornyy zavod (Chelyabinsk Tractor Plant)

Card 3/3

KUDRYAVTSEV, L.A.

Michalowski's operation in strictures of the penile urethra. Urologiia no.4:27-29 '64. (MIRA 19:1)

1. Urologicheskoye otdeleniye Kuybyshevskogo gospitalya invalidov Otechestvennoy voyny (nachal'nik V.P. Kolesnikov; nauchnyy rukovoditel' - dotsent V.P. Smelovskiy) i kafedra fakul'tetskoy khirurgii (zav. - prof. V.L. Ratner) Kuybyshevskogo meditsinskogo instituta.

L 42794-66 EWT(m)/EWP(t)/ETI IJP(c) JD/JG

ACC NR: AP6029057 SOURCE CODE: UR/0413/66/000/014/0084/0084

INVENTOR: Danilkin, V. I.; Kudryavtsev, L. A.

42
B

ORG: none

TITLE: Method of extracting alkali metals. Class 40, No. 183952 [announced by the State Institute of Applied Chemistry (Gosudarstvennyy institut prikladnoy khimii)]

SOURCE: Izobret prom obraz tov zn, no. 14, 1966, 84

TOPIC TAGS: alkali metal, ~~alkali~~ metal extraction, high purity metal, ~~metal~~ electrolytic ~~extraction~~ refining

ABSTRACT: This Author Certificate introduces a method of extracting alkali metals by fused salts electrolysis. To increase the purity of metals, the cathodic space in which a vacuum is maintained is separated from the salt bath by an exchange diaphragm built of glass containing oxides of the extracted metal which serve to isolate the melt from the vacuum cathodic area. [ND]

SUB CODE: 13/11/ SUBM DATE: 18Jan64/ATD PRESS 5067

Card 1/1 UDC: 669.882.37 669.883.37 669.886

KUDRYAVTSEV, L.A. (Vladivostok)

"Flexed hand" symptom in closed fractures of the lateral condyle of humerus. Ortop.travm. i protez. 18 no.3:59 My-Je '57. (MLRA 10:9)
(HUMERUS--FRACTURE)

KUDRYAVTSEV, L.A.

Fracture of the medial epicondyle of the humerus and the accompanying "bent wrist" symptom. Ortrop.travm.i protez. 21 no.3:16-18 Mr '60. (MIRA 14:3)

1. Iz kafedry gospital'noy khirurgii (zav. - prof. A.M.Aminev) Kuybyshevskogo instituta i Kuybyshevskogo oblastnogo gospitalaya invalidov Otechestvennoy voyny (nach. - zasluzhennyy vrach RSFSR R.B.Akhmedzyanov).

(HUMERUS—FRACTURE)

SKURIDIN, M.A.; KUDRYAVTSEV, L.A.

Combined single-profile testing of gears at operating loads and speeds. Izm.tekh. no.7:1-3 Jl '61. (MIRA 14:6)
(Gearing—Testing)

KUDRYAVTSEV, L. A.

Effect of variable rigidity of engaging gear teeth on the vibration and noise of a spur gear transmission. Stan. i instr. 33 no.10:26-28 O '62. (MIRA 15:10)

(Gearing, Spur)

KUDRYAVTSEV, L.A.

Treatment of traumatic strictures of the urethra by Johanson's method. Urologiia no.6: 40-43'62. (MIRA 16:7)

1. Iz urologicheskogo otdeleniya (nauchnyy rukovoditel' - dotsent V.P.Smelovskiy) gospitalya invalidov Otechestvennoy voyny, Kuybyshev.
(URETHRA--DISEASES)

SMELOVSKIY, V.P., dotsent; KUDRYAVTSEV, L.A.

Complications in the urinary tract during traumatic urethral strictures. Kaz. med. zhur. 4:25-27 Jl-Ag'63 (MIRA 17:2)

1. Fakul'tetskaya khirurgicheskaya klinika (zav. - dotsent M.P.Makarov) Kuybyshevskogo meditsinskogo instituta i urologicheskoye otdeleniye (nauchnyy rukovoditel' - dotsent V.P. Smelovskiy) Kuybyshevskogo mezhoblastnogo gospitalya dlya invalidov Otechestvennoy voyny (nachal'nik - V.P. Kolevatykh).

DANILKIN, V.I.; KUDRYAVTSEV, L.A.; IVANOV, V.A.

Method of determining the nature of electric conductivity of potassium glasses. Zhur.prikl.khim. 37 no.1:202-204 Ja '64. (MIRA 17:2)

N, T.I., inzh.; KUDRYAVTSEV, L.S.

Electrical equipment installation operations. Energ. stroi. no.42: 60-63 '64. (MIRA 18:3)

ACC NR: AR7000771 SOURCE CODE: UR/0272/66/000/009/0147/0147

AUTHOR: Kudryavtsev, L. A.

TITLE: Use of an electrolytic bath for generating sinusoidal oscillations

SOURCE: Ref. zh. Metrologiya i izmeritel'naya tekhnika, Abs. 9.32.999

REF SOURCE: Tr. Chelyab. in-ta mekhaniz. i elektrifik. s. kh., vyp. 22, 1965, 295-300

TOPIC TAGS: electrolyte, electrolytic bath, oscillation, sinusoidal oscillation, ~~sinusoidal oscillation generation~~ oscillator theory, signal frequency, frequency characteristic

ABSTRACT: Oscillators which generate sinusoidal oscillations based on various physical principles are used in experimental determination of frequency characteristics of elements. One of the possible design principles is based on the rotation of two electrodes in an electrolytic bath. If the field in the bath is homogeneous, the voltage between the electrodes varies in accordance with sinusoidal law. The errors of such an oscillator are determined by the inaccuracy of the equipotential surfaces. The amplitude of the output signal of such an oscillator is stable, does

Card 1/2 UDC: 621.373.42

ACC NR: AR7000771

not depend on frequency, and is easily adjusted. Frequency stability is determined by the drive speed. At a frequency of 3--4 cps, the amplitude becomes unstable, and frequency distortion takes place. To raise the upper limit of the frequency, a circuit is proposed which has been used in designing and testing oscillators with two and four pairs of poles. Their accuracy depends on the accuracy of the construction and assembly of the electrodes. Tests have revealed the presence of subharmonic of 2—3% in the voltage curve caused by the noncoincidence of the rotation axis of the output electrode with the field axis. There is one illustration and a bibliography of 4 titles. [Translation of abstract] [DW]

SUB CODE: 20, 09/

Card 2/2

KUDRYAVTSEV, L.D.

Kudryavtzev, L. D., and Rodnyanski, A. M. On the power of the system of components of sets of the type F_σ. C. R. (Doklady) Acad. Sci. URSS (N.S.) 52, 3-5 (1946).

The authors state the following theorem. Let R be any set which is an F_σ. Then the system of components of R is finite, denumerable or of the power of the continuum. Their proof assumes that the set R is a subset of a space X which is a countable union of bicompact spaces and that X satisfies the second axiom of countability. Under these restrictions, the theorem is true. *E. Hewitt* (Bryn Mawr, Pa.)

Source: Mathematical Reviews, Vol 8, No. 3

Moscow State U.

USSR/Electricity Jul/Aug 48
Circuits, Electrical
Mathematics, Applied

"Several Problems Relating to Electrical Circuits," L. D. Kudryavtsev, 39 pp

"Uspekhi Matemat Nauk" Vol III, No 4 (26)

PA17/49T21

Gives survey of various problems of the theory of electrical circuits, mainly the question of their synthesis according to various previously given characteristics. Electric circuits under discussion are assumed to have only steady-state solutions. Under this assumption, the method of matrices is the

17/49T21

USSR/Electricity (Contd) Jul/Aug 48

most suitable solution. As far as possible, the purely topological geometrical aspects are kept separate from the purely physical ones.

17/49T21

KUDRYAVTSEV, L. D

KUDRYAVTSEV, L. D.

Kudryavcev, L. D. On the principles of carrying out arithmetical operations on computing machines. Uspehi Matem. Nauk (N.S.) 5, no. 3(37), 104–127 (1950). (Russian)

This is an exposition of some elementary principles for designing devices for carrying out simple arithmetic operations on digital machines. The author discusses systems of numeration, machine elements (relays, vacuum tubes, etc.), registers, adders, multipliers, and dividers, with some very brief remarks about control.

H. B. Curry.

Source: Mathematical Reviews, Vol. 12 No. 1 (8mw)

KUDRYAVTSEV, L. D.

PA 243T91

USSR/Mathematics - Pedagogy Nov/Dec 52

"Reduction of a Multiple Lebesgue Integral to a Double Integral," L.D. Kudryavtsev and Yu.D. Kashchenko

"Usp Matemat Nauk" Vol 7, No 6 (52), pp 211, 212

Article appears in "Notes on Methodology" section of "Usp Matemat Nauk." Discusses V. I. Smirnov's formulation of the general theorem of Fubini in which an error has been detected. Corrects this error, which occurred in Smirnov's "Kurs Vysshey Matematiki" (Course on Higher Mathematics), Vol 5, State Technical Press, 1947.

243T91

[illegible] D.; KASHCHENKO, YU. D.

Integrals

Substitution of variable in an integral. Dokl. AN SSSR 84, No. 5, 1952.

Monthly List of Russian Accessions, Library of Congress, October 1952. Unclassified.

KUDRYAVTSEV, L. D.

Mathematical Reviews
Vol. 15 No. 1
Jan. 1954
Analysis

7-13-54
LL

Kudryavcev, L. D. On properties of differentiable mappings of regions of Euclidian spaces. Mat. Sbornik N.S. 32(74), 493–514 (1953). (Russian)

The author establishes a number of properties of differentiable mappings and their Jacobians or Jacobian matrices. Those which appear to the reviewer most interesting and novel are as follows, the symbols μ and μ_λ being used to denote Lebesgue measure in Euclidean n-space R_n and Hausdorff measure of dimension λ where $0 \leqq \lambda < \infty$. (I) Let E be a subset of a domain in R_n and f a differentiable mapping of this domain; then the relation $\mu_\lambda(E) = 0$ implies $\mu_\lambda(fE) = 0$ and for a compact E the relation $\mu_\lambda(E) < \infty$ implies $\mu_\lambda(fE) < \infty$; further, if E is measurable and f maps into R_n, the following statement is true for almost every u in fE: let Q describe concentric cubes with diameter tending to zero and centre in $f^{-1}u$ and let $U = fQ$, then $\mu(U - fE)/\mu(U) \to 1$. (II) Let $f(x, y)$ be a differentiable mapping of a domain G of (R_p, R_q) into R_p such that its Jacobian in x, $J(x, y)$, is positive except in a subset G_0 of G, without interior, in which $J(x, y) = 0$; then for each boundary point u of fG the set $f^{-1}u$ is a non-compact subset of G_0. The author stresses incidentally that the equivalence, for a differentiable function of one variable, of possession of a non-negative derivative with the property of being monotone increasing, has as natural generalization, valid for a differentiable mapping into R_n of a domain in R_n, the equivalence of possession of a non-negative Jacobian with the property of being positively oriented. *L. C. Young.*

KUDRYAVTSEV, L.D.

Mathematical Reviews
Vol. 15 No. 4
Apr. 1954
Analysis

8-24-54
LL

Kudryavtsev, L. D. On summability of Jacobians. Mat. Sbornik N.S. 33(75), 389–398 (1953). (Russian)

Let G be a domain of Euclidean n-space R and let f be a differentiable mapping of G into R. Further let J be the Jacobian of f and let G_0 be the set of the points of G at which $J(x)=0$. The mapping is (weakly) monotone if the set $f^{-1}(y)$ is connected for each y in $f(G)$, compact if this set is compact. The author terms pseudo-multiplicity of a subset E of G, the smallest cardinal not exceeded by that of the intersection of E with $f^{-1}(y)$ for any y in $f(E)-f(G_0)$. Two theorems are proved: (I) if f is monotone and E is a measurable subset of G, then the measure of $f(E)$ is the integral over E of $|J|$ and (II) if f is compact and E is a compact subset of G, then the pseudo-multiplicity of E is finite and J is summable over E. The author refers in one place to Radó and Reichelderfer [Proc. Nat. Acad. Sci. U. S. A. 35, 678–681 (1949); these Rev. 11, 588] but makes no attempt to attain a comparable degree of generality.

L. C. Young (Madison, Wis.).

(1) Math 5

KUDRYAVTSEV, L. D.

USSR/Mathematics - Dirichlet Problem 21 Sep 53

"Harmonic Representations," L. D. Kudryavtsev, Moscow Phys-Tech Inst

DAN SSSR, Vol 92, No 3, pp 469-472

States that an essential generalization of the two-dimensional Dirichlet problem is: Given 2 planar regions G and F, the continuous reflection of the boundary of one region onto the boundary of the other, and a certain system of 2 differential eqs for 2 functions of 2 variables; find a

268T77

continuous reflection of a closed region $\bar{G}$ onto $\bar{F}$ which coincide on the boundary of G with assigned representation. Poses the problem of discovering the necessary and sufficient conditions to be imposed on the boundary representations for which one can find the necessary representation in the harmonic class. Solves it for the partial case of harmonic functions. Investigates their properties. Shows that the region into which a representation falls resolves essentially into a number of subregions called canonic components by the author, in which the harmonic representation possesses many properties of analytic functions.

Presented by Acad M.A. Lavrent'yev 25 Jun 53.

268T77

KUDRYAVTSEV, L. D.

"Differentiable Representations of Regions of Euclidean Spaces," Uspekhi Matematicheskikh Nauk, Vol 8, No 2 (54), pp 159-167.

KUDRYAVTSEV, L.D.

One generalization of the theorem of S.M.Nikol'skii on the compactness of classes of differentiable functions. Usp.mat.nauk 9 no.1:111-120 Ja-F '54.
(MLRA 7:2)
(Topology)

KUDRYAVTSEV, Lev Dmitriyevich

USSR/Mathematics - Implicit functions

FD-1169

Card 1/1 Pub. 118-10/30

Author : Kudryavtsev, L. D.

Title : Implicit functions

Periodical : Usp. mat. nauk, 9, No 3(61), 155-156, Jul-Sep 1954

Abstract : The aim of the author in this brief article is to obtain a complete theorem on implicit functions in the case where one rejects the requirement of continuity of the partial derivatives of the given functions. In the demonstration derived the author does not make use of the Jung theorem. He notes that the well known classical theorem on implicit functions is demonstrated ordinarily for the case of continuously differentiable functions, the more general results for the case where the requirement of continuous differentiability is replaced simply by differentiability being the Jung theorem (see Vallee-Poussin, Cours d'analyze, I, 1933).

Institution :

Submitted : May 8, 1953