

SOV/125-12-2-5/14

The Microstructure of the Metal of a Joint when Welding Aluminum

further cooling forms little dispersed insertions of intermetallic joints and of individual elements which form independent phases of FeAl_3 , Si and triple joints. During the rapid cooling characteristics of the formation of a real ingot, apart from a stable solution of aluminum, depending on the proportions of admixture and on cooling rates, the following phases may be found in the metal structure: FeAl_3 , Si, α (Fe - Si - Al) and β (Fe - Si - Al). Spectral analysis data showed that admixtures are fairly evenly distributed along the axis of the joint and across its section. Deviations in individual values did not exceed $\pm 10\%$. The microstructure of joints containing $0.3 \div 0.38\%$ Fe in the complete absence of silicon and with a low concentration of it is illustrated. The small dispersal of deposits of FeAl_3 is clearly visible. They are evenly distributed along the whole surface of the edges. With a 0.11% Silicon content individual insertions appear of a new and finer phase which apparently contains silicon. As the silicon content increases a triple combination, α (Fe - Si - Al),

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can be distinguished. The conclusion drawn by the article is that metallographic research into joints of aluminum with a varying iron and silicon content establishes the presence of the following phases in the structure: FeAl₃, a triple combination probably of the α (Fe - Si - Al) type, and silicon. There are 4 graphs, 1 table, 5 illustrations and 7 references, 4 of which are Soviet, 2 English and 1 German.

ASSOCIATION: Ordena trudovogo krasnogo znameni institut elektrosvarki imeni Ye.O.Patona AN USSR (Order of the Red Banner of Labor Institute of Electric Welding imeni Ye.O.Paton of the AS UkrSSR)

SUBMITTED: November 24, 1958

Card 3/3

RABKIN, D. M.

PHASE I BOOK EXPLOITATION SOV/5078

Akademiya nauk URSS; Kiyev. Instytut elektrozvaruyuvannya
Vnedreniye novykh sposobov svarki v promyshlennosti; sbornik statey.
vyp. 3. (Introduction of New Welding Methods in Industry; Col-
lection of Articles, v. 3) Kiyev. Gos. izd-vo tekhn. lit-ry
URSSR, 1960. 207 p. 5,000 copies printed.

Sponsoring Agency: Ordena Trudovogo Krasnogo Znameni Institut
elektrozvarki imeni akademika Ye. O. Fatona Akademii nauk
Ukrainskoy SSR.

Ed.: M. Pisarenko; Tech. Ed.: S. Matusevich.

PURPOSE: This collection of articles is intended for personnel in
the welding industry.

COVERAGE: The articles deal with the combined experiences of the
Institut elektrozvarki imeni Ye. O. Fatona (Electric Welding
Institute imeni Ye. O. Faton) and several industrial enterprises
in solving scientific and engineering problems in welding
technology. Problems in the application of new methods of me-
chanized welding and electroslag welding in industry are discussed.
This is the third collection of articles published under the same
title. The foreword was written by B. Ye. Faton, Academician of
the Academy of Sciences Ukrainian SSR and Lenin prize winner.
There are no references.

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Katkin, D.M.

PLANE I BOOK EXCERPTION 807/243

Sveshchikulya po teorii litseynykh protsessov, M

Teoriya protsessov v metallakh i tverdye sploshnye teliya (Spravochnyye protsessy v metallakh) izdaniya v teorii litseynykh protsessov, M: Mashinostroyeniye, 1960. 261 p. Kzeta slip inserta. 3,000 copies printed. Sponsoring Agency: Akademiya nauk SSSR, Institut mashinostroyeniya. Komissiya po tekhnologicheskoy mashinostroyeniya.

№7. Ed.: B.A. Gulyayev, Doctor of Technical Sciences, Professor; Ed. of Publishing House: V.S. Babushkov; Tech. Ed.: T.Y. Polyskova.

PURPOSE: This collection of articles is intended for scientific workers, engineers, technicians of scientific research institutes and industrial plants, and for faculty members of schools of higher education.

CONTENTS: The collection contains technical papers presented at the Third Conference on the Theory of Casting Processes, organized by Litzeynaya sektsiya Komissii po tekhnologii mashinostroyeniya Institutov mashinostroyeniya AN SSSR (Casting Section of the Commission for Machine-Building Technology of the Institute of Science and Technology, Academy of Sciences USSR) and by Institut metallurgicheskoy fiziki AN SSSR (Institute of Metallurgy Lenin A.A. Baykov, Academy of Sciences USSR). The most significant articles in casting, input, and voids as a result of metal shrinkage are reviewed. Factors contributing to the formation of shrinkage cavities, porosity, cracks, deformations, and internal stresses are analyzed along with means, methods, and devices to prevent and remedy them. The hydrolysis of molten metals and the process of solidification of metals are discussed. Also presented are resolutions of the conference with regard to the problem of shrinkage in metals. Resolutions are mentioned. Most papers are accompanied by bibliographic references, the majority of which are Soviet.

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TR/evr/ata
11-16-60



26043
S/137/61/000/007/058/072
A060/A101

1.2300 1573

AUTHOR: Rabkin, D. M.

TITLE: Welding of nonferrous metals and light alloys

PERIODICAL: Referativnyy zhurnal, Metallurgiya, no. 7, 1961, 45, abstract 7E316
(In the collection: "1-ya Sibirsk. konferentsiya po svarke, 1959".
Barnaul, 1959 (1960), 123-137)

TEXT: The problems relating to welding Al, Ti, Cu and their alloys are considered. In the production of various kinds of Al vessels of thickness 10 - 20 mm and capacity 2 - 100 m³ automatic shielded-arc submerged-melt welding is widely applied. A new universal tractor-type automaton TC-33 (TS-33) for welding Al and its alloys designed at the Institute of Electric Welding is described. The automaton ensures the welding of metal of thickness 3 - 40 mm by shielded arc in a jet of protective gases. The welding of Al - Mg alloys is considered, examples of industrial application of forms of welding based on the use of fluxes are given. For Ti good results are obtained by the use of automatic submerged-melt welding. At the Institute of Electric Welding oxygen-free fluxes have been developed on the base of halide compounds of a metal for welding

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Welding of nonferrous metals and light alloys

titanium. Flux is used for welding metal with thickness 2 - 3 mm. For joining metals with lower thickness, argon arc welding with tungsten electrodes is more maneuverable. For welding Cu and its alloys various techniques of welding are worked out depending on the dimensions of the parts, the type of alloy, etc.

V. Tarisova

[Abstracter's note: Complete translation]

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18(7)

SOV/125-60-1-10/18

AUTHOR: Rabkin, D.M., Yagupol'skaya, L.N., Pokhodenko, V.D.,
Langer, N.A.

TITLE: On the Problems of Accelerated Corrosion Tests of Welded
Aluminum Joints in Nitric Acid

PERIODICAL: Avtomaticheskaya svarka, 1960, Nr 1, pp 74-78 (USSR)

ABSTRACT: In their previous work [Ref 1] the authors showed that
50% nitric acid can be used for the accelerated testing
of aluminum welds for corrosion resistance. Boiling for
two hours in such an acid concentration ensures better
results than tests with concentrated nitric acid. The
optimum sizes of test samples are determined and the
accelerated test method is explained. The size of the
samples can considerably influence the results of the
tests. Table 1 and graphs 1 and 2 show test results de-
pending on the size of samples. The latter were tested
for two hours in boiling 50% nitric acid. Figure 3
shows samples of different length after the tests.
As the ratio of the area of the basic metal in the

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On the Problems of Accelerated Corrosion Tests of Welded Aluminum Joints in Nitric Acid

sample increases in relation to that of the weld, the mean rate of corrosive destruction gradually drops. To determine the influence of the size of the butt end surfaces on corrosion of the welded joint, different thicknesses of the latter were tested. The results of these tests are given in table 2. Experiments were made by putting samples straight into boiling acid, and by putting them into cold acid and then bringing it up to the boiling point. The average rate of corrosive destruction depending on these two conditions is shown in table 3. On the basis of investigations, the results of which are described in the previous work [Ref 1] and in this article, and after consideration of the results of tests conducted at plants, an industrial test method was developed. It includes instructions for the preparation of samples, the tests themselves and the methods of evaluating results. The method has been tried at a number of

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On the Problems of Accelerated Corrosion Tests of Welded Aluminum Joints in Nitric Acid

plants where it received approval. It can be used for testing the welded parts of chemical equipment for corrosion by nitric acid. The authors thank engineer Ivleva (Penzkhimmash), S.V. Shimanskaya, V.G. Labitskiy (zavod "Krasnyy Oktyabr'") ("Krasnyy Oktyabr'" Plant) and Kuramzhin (Uralkhimmash) for their aid in developing the method. There are 1 diagram, 2 graphs, 1 photograph, 3 tables, and 2 Soviet references.

ASSOCIATION : Ordena Trudovogo Krasnogo Znameni Institut elektrosvarki im Ye.O. Patona AN USSR (Order of the Red Banner of Labor Institute of Electric Welding imeni Ye.O. Paton AS UkrSSR).

SUBMITTED: 1 July 1959

Card 3/3

MOVCAN, B.A.; RABKIN, D.M.; GUREVIC, S.M.; ZAGREBENJUK; ENBULAJEV, N.
[translator]

Technological peculiarities in welding by electron beam in vacuum.
Zavarivac 5 no.4:12-13 '60.

RABKIN, D. M.

"Metallurgical Problems in AlMg Alloys."

Report presented at the 2nd Intl. Colloquium on Weldability and Welding
Metallurgy of Nonferrous Metals, Weimar, 2-3 March 1961

Inst. for Electrowelding in Ye. O. Paton, Kiev, Ukr SSR

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S/125/61/000/004/010/013
A161/A127

12300

AUTHORS: Rabkin, D. M., Steblovskiy, B. A.

TITLE: Welding AMg6 alloy with consumable electrodes in argon with chlorine addition

PERIODICAL: Avtomaticheskaya svarka, no. 4, 1961, 78 - 82

TEXT: Experiments have been conducted to find simple chlorine addition techniques and determine the effect of the chlorine content in argon on the welding process and Al-Mg weld metal properties. Reference is made to the publication suggesting a chlorine addition [Ref. 2: M. B. Kasen and A. R. Pfluger, Chlorine Additions for High-Quality Inert Gas Metal-Arc Welding of Aluminum Alloys, "Welding Journal", 269-S, 276-S, 1958]. The composition of the AMr6 (AMg6) alloy used in the tests is: (%) 7.0 Mg, 0.57 Mn, 0.1 Fe, 0.37 Si, 0.11 Ti. Welding was carried out using 2 mm AMg6 wire, and first-composition argon according to the BTV NOY-2 (VTU NOU-2) specification with chlorine of the brand employed for water chlorination (99.5% Cl₂). The mixing arrangement is shown in a diagram. Chlorine was fed into the mixer at 1 ÷ 5 atm pressure through a cast iron throttle valve lined with fluoroplastic. The welding nozzle is illustrated. The process was conducted at

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Welding AMg6 alloy with consumable electrodes in...

550 m/hr wire feed, 20.8 m/hr welding speed, 35 volt arc, with 400 amp d.c. with inverse polarity. The chlorine additions were not varied. The positive effect of chlorine was seen already at 1% of it in argon, but the maximum effect was reached at higher contents, between 2 and 3%. Pores disappeared completely from weld metal, and the mechanical properties slightly improved. The toxicity of chlorine has to be considered, its maximum permissible content in the surrounding air is 0.001 g/m³. The conclusion is drawn that the optimum chlorine content in argon is 1 - 2%, and welding should be conducted in the open air, or exhaust ventilation must be provided. There are 4 figures, 2 tables and 3 references: 2 Soviet-bloc and 1 non-Soviet-bloc. The reference to the English-language publication reads as follows: M. B. Kasen and A. R. Pfluger, Chlorine Additions for High-Quality Inert Gas-Metal Welding of Aluminum Alloys, "Welding Journal", 269-S, 276-S, 1958.

ASSOCIATION: Ordena Trudovogo Krasnogo Znameni institut elektrosvarki im. Ye. O. Patona AN USSR ("Order of the Red Banner of Labor" Electric Welding Institute im. Ye. O. Paton AS UkrSSR)

SUBMITTED: September 22, 1960

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18 8300

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27031

S/125/61/000/002/003/013

A161/A133

AUTHORS: RABKIN D. M.
Yabkin, D. M., Yagupol'skaya, L. N., Nikitina, A. ~~X~~; Grabin, V. F.

TITLE: Effect of heat treatment on the corrosion resistance of AMg6 alloy and its welds

PERIODICAL: Avtomaticheskaya svarka, no. 2, 1961, 40-47

TEXT: The AMГ6 (AMg6) alloy is an extensively used alloy that is corrosion-proof in air but not so in sea water. It is used in shipbuilding, apart from many other applications. It has been known for a long time that Al-Mg alloys with above 5% Mg are prone to sea water corrosion after hardening and aging, and the AMg6 can contain as much as 6.5% Mg. The described tests were carried out because of contradictory data in literature on the effect of heat treatment on such alloy grades. Two studied AMg heats had the following composition: 1) (%) 6.2 Mg, 0.70 Mn, 0.25 Fe, 0.25 Si, 0.14 Ti; 2) 6.5 Mg, 0.59 Mn, 0.05 Fe, 0.06 Si, 0.10 Ti. The welds were produced with an automatic argon arc process, with tungsten electrodes and filler wire of AMg6. The corrosion test solution was water with 3% NaCl + 1% HCl; tests were carried out at 20°C, for 24 and 48 hours, and the test techniques corresponding to those described by P. Brenner and W. Roth

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Effect of heat treatment on the corrosion ...

[Ref. 12: Recent developments in corrosion-resistant Al-Mg alloys. J. Institute of Metals, 74, 159, 1947). The results show that the corrosion rate rose abruptly after annealing at 125 - 225°C, then dropped, increased slightly in the 300 - 400°C range and decreased again at 500°C. The article includes photomicrographs made with an electron microscope. It was evident that metal subjected to the effect of high temperature (above 500°C) did not corrode, and that a second phase of peculiar appearance segregated on the grain boundaries in a continuous grid. Judging by the data of other investigations it was the β' phase that is instable and is converted into the equilibrium β -phase at higher temperatures. The β' phase has a higher negative potential than the solid Mg solution in Al and the usual β , and besides the solid solution loses Mg at its formation. The considerable potential difference in an electrolyte causes rapid decomposition of the boundary grid and a separation of whole grains from the metal. Apart from this, the behavior of metal appears to depend somehow on the state of the grain boundaries themselves, as this was noticed by F. Erdmann-Jesnitzer [Ref. 15: Interkristalline Korrosion und Korngrenzenaufbau, "Werkstoffe und Korrosion", 9 N., 1, 7, 1958]. It is concluded that the alloy tends to intercrystalline corrosion after 10-hours at 125-225°C, and long heating in this range must be avoided. There are 5 figures, 2 tables and 15 references: 12 Soviet-bloc and 3 non-

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Effect of heat treatment on the corrosion ...

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Soviet bloc. Two references to English-language publications read as follows:
F. M. Reinhart, G. A. Ellinger, Corrosion resistance of aluminum alloys, Light
Metal Age, 14, N. 5-6, 16, 1956; P. Brenner, W. Roth, Recent developments in
corrosion-resistant Al-Mg alloys. J. Institute of Metals, 74, p. 159, 1947.

ASSOCIATION: Ordena Trudovogo Krasnogo Znameni Institut elektrosvarki im. Ye. O.
Patona AN USSR (Electric Welding Institute "Order of the Red Banner
of Labor" AS UkrSSR)

SUBMITTED: June 15, 1960

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26787
S/125/61/000/005/004/016
A161/A127

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1573

AUTHOR: Rabkin, D. M.

TITLE: On fluxes for automatic welding of aluminum

PERIODICAL: Avtomaticheskaya svarka, ¹⁴⁻no. 5, 1961, 37 - 42

TEXT: The article presents results of an experimental investigation of the AH-A1 (AW-A1) flux that is being used very extensively since automatic welding of aluminum came into use [Ref. 1: D. M. Rabkin, A new method of automatic welding of aluminum, "Avtom. svarka", no. 4, 1953]. Its constituents are KCl, NaCl, and Na₃AlF₆, usually taken at a ratio of 50 : 20 : 30 (weight units). Other ratios and more complex compositions had also been suggested. In the described experiments, fluxes were tested with a wide variety of ratios of the three constituents. All fluxes were fused to eliminate water. AD1 (AD1) aluminum plates 6 mm thick were welded with AD1 wire 1.3 mm in diameter, with 170±15 amp, 30±2 v, and 23.5 m/hr welding speed. Flux was heaped 7 mm high into a trapezoid over the joint. The effect of chlorine was tested by blowing argon with 5% chlorine about the welding arc, and by spilling aluminum chloride in front of the arc. It was evident that chlorine itself is not an antistabilizer of the welding arc in the d-c process, but

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On fluxes for automatic welding of aluminum

the liquefied chlorides take much electric energy for evaporation, and the result is insufficient heat left on the cathode for fusing the base metal. The effect of cryolite seems to be connected with the formation of aluminum chloride displacing the liquid chlorides from the metal surface, and it is possible that an additional quantity of heat liberates on the cathode (i.e. base metal) during the formation of negative Cl ions. Optimum weld shapes were obtained using fluxes with about 30% cryolite at comparatively wide variations of NaCl (10 - 40%) and KCl (30 - 60%) ratios. Highest strength and bend angle had specimens welded with fluxes containing 30% cryolite and various quantities of KCl and NaCl (0 - 60% NaCl). The problem of the separation of the slag crust will have to be further studied. The corrosion resistance of welds was tested by 2 hours boiling in 50% nitric acid. A high corrosion resistance was stated. The AN-Al flux proved good. It is recommended to keep the NaCl content at the lowest possible level in view of the magnesium chloride present in NaCl and having the capacity to attract humidity. Even 1st class standard NaCl as to GOST 153-57 may contain up to 0.3% MgCl₂. The conclusion is drawn that the best fluxes are containing 20 - 40% NaCl, 30% Na₃AlF₆ (KCl the remainder). It is evident that not only slag but also the shielding gas forming in the welding process protect the welding pool, and that chlorine is not

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On fluxes for automatic welding of aluminum

a direct arc unstabilizer in d.c. welding with inverse polarity. The article includes graphs and a photograph of test welds. There are 6 figures and 9 references; 8 Soviet-bloc and 1 non-Soviet-bloc. The reference to the English-language publication reads as follows: A. Schärer, Arc Welding of Aluminium and its Alloys, "Light Metals", July, 1948.

ASSOCIATION: Ordena Trudovogo Krasnogo Znameni Institut elektrosvarki im. Ye. O. Patona AN USSR ("Order of the Red Banner of Labor" Electric Welding Institute im. Ye. O. Paton AS UkrSSR)

SUBMITTED: March 3, 1960

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L 11881-63

Rabkin, D. M.

EWP(k)/EWP(q)/EWT(m)/BDS AFFTC/ASD
PHASE I BOOK EXPLOITATION

Pf-4 JD/HM
SOV/6330

Paton, B. Ye., Lenin Prize Winner, Academician, ed.

Tekhnologiya elektricheskoy svarki plavleniyem (Technology of Electric Fusion Welding), Moskva, Mashgiz (Southern Dept.), 1962. 663 p. Errata slip inserted. 25,000 copies printed.

Ed.: M. S. Soroka; Tech. Ed.: M. S. Gornostaypol'skaya; Chief Ed.: V. K. Serdyuk, Engineer.

Review: Department of Welding, Leningrad Polytechnic Institute; and Department of Welding, Moscow Higher Technical Institute imeni Bauman.

PURPOSE: This handbook is intended for students of schools of higher education who specialize in welding. It may also be used by engineering personnel of scientific research organizations and plants.

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L 11881-63
Technology of Electric Fusion (Cont.)

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COVERAGE: The book reviews the basic principles of the technology of electric fusion welding of various metals and their alloys. Classification of welding processes and comparative characteristics of mechanized and manual welding methods are presented. Weldability problems and causes of defects in welded joints are discussed. Information on materials, equipment, and conditions of welding and surfacing of various metals, alloys, and structures is given. Brief information on the use of heat sources employed in special types of welding and on safety precautions is also given. The Introduction, Chapter I (except the part headed "Arc Welding" in section 1), Chapter II (except the part headed "Cold Cracks" in section 5, the part on methods of determining resistance to brittleness in sections 6, 7, 8, 9, 11, and 14) are the work of S. A. Ostrovskaya, Candidate of Technical Sciences. The part entitled "Welding Arc" in paragraph 1 was written by Ostrovskaya in cooperation with D. M. Rabkin, Candidate of Technical Sciences. A. M. Makara, Candidate of Technical Sciences, wrote the parts entitled "Cold Cracks" in

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40138

S/078/62/007/007/007/013
B117/B101

1.2300

AUTHORS: Bukhalova, G. A., Maslennikova, G. N., Rabkin, D. M.

TITLE: Ternary reciprocal system of chlorides and hexafluoroaluminates
of sodium and potassium

PERIODICAL: Zhurnal neorganicheskoy khimii, v. 7, no. 7, 1962, 1640 - 1643

TEXT: Components of the system Na^+ , $\text{K}^+ \parallel \text{Cl}^-$, AlF_6^{3-} are used in the production of fluxes for welding aluminum and its alloys. This binary system was studied polythermally with the following results: $\text{Na}_3\text{Cl}_3 - \text{Na}_3\text{AlF}_6$ has a eutectic at 733°C and 27% Na_3AlF_6 . $\text{K}_3\text{Cl}_3 - \text{K}_3\text{AlF}_6$ has a eutectic at 717°C and 22% K_3AlF_6 . $\text{Na}_3\text{AlF}_6 - \text{K}_3\text{AlF}_6$ forms continuous solid solutions with a eutectic at 927°C and 30% K_3AlF_6 . Studies of 12 internal and 2 diagonal sections of the system showed the crystallization surface to consist of continuous solid solutions both of sodium and potassium hexafluoroaluminates and of sodium and potassium chlorides. The two regions are separated by a curve with a minimum at 631°C and 10.5% Na_3AlF_6 , 50%
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3/078/62/007/007/007/013
B117/B101

Ternary reciprocal system of...

K_2Cl_3 and 39.5% Na_2Cl_3 . The low heat effect of the exchange reaction (0.135 and 0.045 kcal/equ) proves the existence of a complete reciprocal exchange in melts. Hence it follows that potassium cryolite in molten state is also contained in a flux produced from sodium and potassium chlorides with sodium cryolite alone. The studies showed potassium cryolite to be very effective for welding Al and its alloys. The system examined has practical and scientific importance especially in the chemistry of aluminum salts in melts. There are 3 figures. f

ASSOCIATION: Rostovskiy-na-Donu inzhenerno-stroitel'nyy institut (Rostov-na-Donu Construction Engineering Institute). Institut elektrosvariki im. Ye. O. Patona Akademii nauk USSR (Electric Welding Institute imeni Ye. O. Paton of the Academy of Sciences UkrSSR)

SUBMITTED: July 7, 1961

Card 2/2

RABKIN, D.M.; SAVICH, I.M.; ROZHDESTVENSKAYA, T.S.

Construction of all-aluminum passenger cars. Avtom. svar. 15 no.2:
60-65 F '62. (MIRA 15:1)

1. Ordena Trudovogo Krasnogo Znameni Institut elektrosvarki im. Ye.
O.Patona AN USSR (for Rabkin, Savich). 2. Kalininskiy vagonostroi-
tel'nyy zavod (for Rozhdestvenskaya).
(Railroads--Passenger cars) (Aluminum--Welding)

38894

S/125/62/000/007/001/012.
D040/D113

1.2310

AUTHORS: Rabkin, D.M. and Ryabov, V.R.

TITLE: Flash welding carbon steel to Al-Mg alloys

PERIODICAL: Avtomaticheskaya svarka, ¹⁵⁻no. 7, 1962, 1-7

TEXT: Joints with up to 20 Kg/mm² ultimate strength were obtained by argon arc welding St.3 (St.3) carbon steel to specimens of AM₄ (AMts), AM₃ (AMg3), AM₅B (AMg5V), and AM₆1 (AMg61) alloys and pure aluminum, using various interlayers. Cu, Ni, Cd, Pb, Sn, Zn, Ag, brass, Mg and Zn-Al interlayers, obtained by electroplating or dipping, were tried. The best type of interlayer proved to be a combination of 6 μ thick copper and 40 μ thick zinc. The copper coating process in a pyrophosphate bath followed by zinc electroplating is described in detail. Welding was conducted with a standard YAP-300-1 (UDAR-300-1) welder, 80-120 amp current, and 6-8 l/min argon flow. Satisfactory joints were also obtained by depositing a 20 μ thick brass interlayer with subsequent zincification. AMg 3 alloy and St.3 tubes, with 8 and 5 mm wall thicknesses respectively, were welded using the described techniques, and the welds were sound. Conclusions: (1) The obtained

Card 1/2

S/125/62/000/007/001/012
D040/D113

Flash welding carbon

data confirmed existing research data, proving that welded joints between steel and aluminum can have a sufficient strength (about 10 Kg/mm²) equal to the strength of the aluminum, when the steel is preliminarily coated with zinc; (2) the use of combined coatings (copper + zinc) on steel, AMts filler wire, and proper welding techniques results in the obtaining of welded joints with 15±20 Kg/mm² ultimate strength. There are 8 figures and 1 table.

ASSOCIATION: Ordena Trudovogo Krasnogo Znameni Institut elektrosvarki im. Ye.O. Patona AN USSR (Electric Welding Institute "Order of the Red Banner of Labor" im Ye.O. Paton, AS UkrSSR)

SUBMITTED: December 30, 1961

Card 2/2

S/125/62/000/009/004/008
A006/A101

AUTHORS: Rabkin, D. M., Nikitina, A. V.

TITLE: The structure of an aluminum seam

PERIODICAL: Avtomaticheskaya svarka, no. 9, 1962, 50 - 56

TEXT: The authors studied the effect of the welding speed, the thickness of the base metal and the temperature of preheating the base metal, upon the structure of "A00" aluminum seams with a relatively low content of impurities (0.08% Fe, 0.07% Si, 0.005% Cu). The welding speed varied from 13.9 to 42 m/hour; the welded plates were 6 - 25 mm thick and the preheating temperature was 100, 200, 300 and 400°C. To study the effect of the basic metal grains upon the nature of crystallite growth near the fusion line, plates with different grain size were produced by annealing and deformation. It was found that the microstructure of aluminum welds is characterized by a columnar orientation of crystallites; directly near the fusion line the crystallites of the weld are the prolongation of fused metal grains. The crystallite size increases with coarser weld metal grains. Beyond the fusion line, the crystallite size does practically not depend ✓

Card 1/2

The structure of an aluminum seam

S/125/62/000/009/004/008

A006/A101

upon the base-metal grain size and is determined by the welding conditions. Along the line of heat emanation a stricter orientation of the crystallites is observed. With higher welding speed the cross sectional size of the crystallites decreases. Under constant conditions the crystallite size increases with higher initial temperature of the metal to be welded; this is connected with the dropping of the temperature gradient. The same phenomenon is observed at a greater thickness of sheets welded in a single pass. Under all the welding conditions the crystallite size increases from the periphery to the center. There are 6 figures and 3 tables.

ASSOCIATION: Ordena Trudovogo Krasnogo Znameni Institut elektrosvarki imeni Ye. O. Patona AN USSR (Order of the Red Banner of Labor Institute of Electric Welding imeni Ye. O. Paton, AS UkrSSR)

SUBMITTED: October 13, 1961

Card 2/2

NIKITINA, A.V.; RYABOV, V.R.; RABKIN, D.M.

Revealing the macro- and microstructure of weld joints between steel and
aluminum. Avtom. svar. 16 nq.4:83-85 Ap '63. (MIRA 16:4)
(Steel--Welding) (Aluminum--Welding) (Metallography)

RABKIN, D.M.; RYABOV, V.R.; DOVBISHCHENKO, I.V.

Using helium and its mixture with argon in aluminum alloy welding.
Avtom. svar. 16 no.9:1-6 S '63. (MIRA 16:10)

1. Institut elektrosvarki im. Ye.O.Patona AN UkrSSR.

RABKIN, D. M. (Cand. Tech. Sci.) (E. O. Paton Inst. of Electrowelding)

"The principal means of creation of joinings of metals with limited mutual solubility and forming intermetallic compounds."
the quest for intermediate phases of pure metal or their alloys, application of bimetallic phases, preliminarily attained by rolling one of the welded metals of the intermediate phases and other means. The long-term prospects for diffusion, cold, cathode-ray welding, welding of ruptures and other means were discussed.

Report presented at the 1st All-Union Conference on welding of heterogeneous metals, at the Inst of Electric Welding im Ye. O. Paton, 14-15 June 1963.
(Reported in Avtomaticheskaya svarka, Kiev, No. 9, Sept 1963, pp 95-96 author, V. R. Ryabov)
JPRS 24,651 19 May 64

L 43614-65 EPF(c)/EPF(n)-2/EPR/EPA(s)-2/EWP(k)/EWA(c)/EWT(m)/EWP(b)/T/EWA(d)/EWP(w)/
EWP(v)/EWP(t) Pr-4/Ps-4/Pu-4 IJP(c) JW/JD/HM/JG/WB/GS

ACCESSION NR: AT5008311 S/0000/64/000/000/0398/0405

AUTHOR: Rabkin, D. M. (Doctor of technical sciences)

TITLE: The problems of fusion welding of aluminum and aluminum alloys

SOURCE: AN UkrSSR. Institut elektrosvarki. Novyye problemy svarochnoy tekhniki (New problems in welding technology). Kiev, Izd-vo Tekhnika, 1964, 398-405

TOPIC TAGS: electric welding, fusion, welding, aluminum welding, aluminum alloy welding, arc welding, weld crack formation

ABSTRACT: At present, the welding of technically pure aluminum, aluminum-manganese and aluminum-magnesium alloys has been mastered for various grades of rel-

57
47
B+1

L 43614-65

ACCESSION NR: AT5008311

ages. For technically pure aluminum preliminary heating of the part is employed. This method cannot be used for many aluminum alloys as it causes lowering of strength and plasticity. The available equipment only permits the welding of metal thicker than 1-0.5 mm, while it is not often necessary to join foil 0.1-0.05 mm thick, and even thinner. The metallurgical problems of welding aluminum alloys include the causes of pore and crack formation, loss of strength close to the joint and corrosion of the weld joint. Pores are formed by emission of hydrogen bubbles due to the decrease in solubility when the temperature of the

L. 43614-65

ACCESSION NO: AT5008311

4

Eliminating these cracks is the proper selection of the chemical composition of the joint metal. New high-strength aluminum alloys will have to be found with high crack formation resistance. The solubility of copper and steel used together with aluminum is relatively low. Copper and aluminum are used together, for example, in circuit breakers. Aluminum alone cannot be used because the aluminum oxides are poor conductors. Aluminum can be argon arc welded to silver-coated metal. This method is not often used since silver is a precious metal. Due to the danger of

Welding Institute, AN UNK...

SUB CODE: 28, 14

SUBMITTED: 052064

ENCL: 00

NO DEF SOV: 000

OTHER: 000

CC

ACCESSION NR: AP4029251

W anhydride or into the W powder. It was found that W electrodes with oxides of Er, Dy, and Sm, in their processing characteristics, are inferior to thoriated-W electrodes but superior to pure-W electrodes. The electrodes with 1-2% of La_2O_3 were found to have the best technological characteristics; they are similar to thoriated-W electrodes and are characterized by the lowest consumption and highest current density. The welding current was 250 amp, at 65 v, with a 3-mm arc. Orig. art. has: 4 figures and 1 table.

ASSOCIATION: Institut elektrosvarki im. Ye. O. Patona AN UkrSSR (Institute of Electric Welding, AN UkrSSR); Moskovskiy elektrolampovy*y zavod (Moscow Electric-Bulb Plant)

SUBMITTED: 12Dec62

DATE ACQ: 27Apr64

ENCL: 00

SUB CODE: *mm*

NO REF SOV: 005

OTHER: 002

Card 2/2

L 12964-65 EWT(m)/EWA(d)/EWP(v)/EWP(t)/EPR/EWP(k)/EWP(b) Pf-J/Ps-J MJW/
JD/HM

ACCESSION NR: AP4043202

S/0125/64/000/008/0026/0030

AUTHOR: Nikitina, A. V.; Rabkin, D. M.

TITLE: Effect of the cooling rate of AMg6 alloy welds on the weld properties ¹³

SOURCE: Avtomaticheskaya svarka, no. 8, 1964, 26-30

TOPIC TAGS: AMg6 alloy, AMg6 alloy weld, AMg6 alloy weld property, AMg6 alloy weld strength, AMg6 alloy weld structure

ABSTRACT: The effect of the cooling rate on weld properties in AMg6 alloy has been studied in MIG-welded plates 12 mm thick and 30-200 mm wide, and in submerged arc-welded plates 6 mm thick and 15-250 mm wide. The content of Mg in the base metal amounted to 6.0% and in the electrode wire, to 6.2%. Experiments showed that the weld strength depends greatly on the rate of weld cooling, i.e., on the width of the plate. In MIG-welded plates it varied from 22.6-23.0 kg/mm² in the plate 30 mm wide to 29.9-31.0 kg/mm² in the plate 150 mm wide, and in submerged

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L 12964-65

ACCESSION NR: AP4043202

2

drop in the cooling rate was observed in plates whose width was less than 65-100 mm. Decrease of weld strength and ductility was particularly pronounced in plates 6 mm thick and 35-50 mm wide joined by MIG welding with full penetration and in plates 12 mm thick and 65-100 mm wide welded by submerged arc. At a high cooling rate (width 100 mm)

ASSOCIATION: Institut elektrosvariki im Ye. O. Patona AN UkrSSR (Elec-
tric Welding Institute, AN UkrSSR)

SUBMITTED: 09Jul63

ATD PRESS: 3096

ENCL: 00

SUB CODE: MH

NO REF SOV: 003

OTHER: 002

Card 2/2

KORENYUK, Yu.M.; MANZHELEY, G.P.; RABKIN, D.M.

Reaction between metal and slag during the welding of copper under
flux. Avtom. svar. 17 no.5:33-39 My '64. (MIRA 17:11)

1. Institut elektrosvariki imeni Patona AN UkrSSR.

NIKITINA, A.V.; RABKIN, D.M.

Effect of the rate of welded plate cooling on the properties
of joints in the AMg6 alloy. Avtom. svar. 17 no.8:26-30 Ag
'64. (MIRA 17:11)

1. Institut elektrosvariki imeni Fatona AN UkrSSR.

L 47072-65 EPA(s)-2/EWT(m)/EPF(c)/EWP(v)/EPR/T/EWP(t)/EWP(k)/EWP(h)/EWA(s)
 Pf-4/Pr-4/Ps-4 IJP(c) JB/HM
 UR/0125/65/000/004/0020/0022

36
34
B

ACCESSION NR: AP5010175

AUTHOR: Rabkin, D. M. (Doctor of technical sciences); Grigorenko, G.M. (Engineer)

TITLE: ²⁷Hydrogen in the puddle and weld porosity in submerged-arc aluminum welding

SOURCE: Avtomaticheskaya svarka, no. 4, 1965, 20-22

TOPIC TAGS: ¹⁶welding, ²⁷aluminum welding, submerged arc welding, weld porosity

ABSTRACT: Sources of hydrogen in submerged-arc aluminum welding, the hydrogen content in the puddle, and weld porosity were investigated. Al 500 x 400 x 20-mm plates, AD-1 3-mm electrode adsorbed by

were tested
can be recommended for cleaning AP-1 welding

Card 1/2

L 47072-65

ACCESSION NR: AP5010175

2

the least amount of moisture; (3) When a nonfused flux is prepared, the cryolite should be fired for 2 hrs at 650C; (4) Heavier welding currents and particularly arc voltages tend to decrease the weld porosity; (5) Deviation from the optimal

ASSOCIATION: Institut elektrosvaraki im. Ye. O. Patona AN UkrSSR (Institute of Electric Welding, AN UkrSSR)

SUBMITTED: 24Mar64

ENCL: 00

SUB CODE: MM

NO REF SOV: 005

OTHER: 001

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Card 2/2

L 53990-65

EWT(m)/EWP(1)/EWP(v)/T/EWP(t)/EWP(k)/EWP(b)/EMA(c) Pf-4

ACCESSION NR: AP5015509

I/P(c) JD/HM/JG

UR/0286/65/000/008/0042/0042
621.791.75

AUTHOR: Rabkin, D. M.; Shteyn, R. O.; Busharin, V. A.; Gushchina, A. V. 29
B

TITLE: Method of fusion welding silver to steel. Class 21, No. 170135 18

SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 8, 1965, 42 27

TOPIC TAGS: welding, silver to steel welding 18

ABSTRACT: This author certificate introduces a method of fusion welding silver to steel. To improve the weld quality, either a copper layer is deposited before welding on the steel or a copper-clad steel plate is joined to the steel [unl]

RABKIN, D.M.; RYABOV, V.R.; BEL'CHUK, G.A., kand. tekhn. nauk,
retsonzent

[Welding aluminum and its alloys with steel and copper]
Svarka aliuminia i ego splavov so stal'iu i med'iu. Mo-
skva, Mashinostroenie, 1965. 93 p. (MIRA 18:6)

L 3500-66 EWT(m)/EWP(v)/T/EWP(t)/EWP(k)/EWP(b)/EWA(c) JD/HM

ACCESSION NR: AP5023083

UR/0125/65/000/009/0042/0046
621.791:546(621+56)

45
40
B

AUTHOR: Rabkin, D. M. (Doctor of technical sciences); Voropay, N. M. (Engineer)

TITLE: Welding of aluminum with copper

44,55

SOURCE: Avtomaticheskaya svarka, no. 9, 1965, 42-46

TOPIC TAGS: welding technology, silver solder, aluminum, copper, metal physical property, electric conduction

ABSTRACT: A literature survey of methods of obtaining permanent Al-Cu joints by pressure and fusion welding is presented. Pressure welding is the most widely used technique in such cases. Thus, for example, aluminum busbars can be reinforced with copper cover plates under a pressure of 8-10 kg/cm². The explosion

avoidance of a brittle intermediate zone, but is applicable only for thin weld-

Card 1/2

L 3500-66

ACCESSION NR: AP5023083

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5

ments. The production of bimetal Al-Cu sheets (cladding) is based on cold welding with simultaneous reduction in area by rolling. The welding of compact and hollow cylinders of Al with cylinders of Cu can be accomplished by friction welding. Other methods employed are: resistance spot welding, resistance butt welding, percussion welding, argon-arc welding, thermit welding. The physical properties and electric conduction of the Cu-Al compounds welded by the methods described above are, however, relatively low, owing to the presence of brittle intermetallic phases in the weld joint. This may be remedied to a large extent by depositing silver solder on the surface of copper prior to the welding. But the scarcity of silver limits the applicability of this technique. The whole survey shows that at present there exists no method that meets practical requirements. Hence, the development of new methods of pressure and fusion welding of aluminum with copper remains an urgent problem. Orig. art. has: 4 figures, 1 table.

ASSOCIATION: Institut elektrosvarki im. Ye.O. Patona AN UkrSSR (Electric Welding Institute, AN UkrSSR) 44,55

SUBMITTED: 23Mar65

ENCL: 00

SUB CODE: IE, MM

NO REF SOV: 018

OTHER: 031

APPROVED FOR RELEASE: Tuesday, August 01, 2000

L 3085-66 EWT(m)/EWA(d)/EWP(t)/EWP(z)/EWP(b)/EWA(h) IJP(c) MJW/JD
ACCESSION NR: AP5021986 UR/0286/65/000/014/0061/0061
621.791.856.3 33
B

AUTHOR: Rabkin, D. M.; Ryabov, V. R.; Yumatova, V. I.; Doroshenko, M. T.

TITLE: Method of automatic argon-shielded arc welding of high-strength aluminum alloys. Class 21, No. 172931 27

SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 14, 1965, 61

TOPIC TAGS: aluminum alloy, magnesium containing alloy, high strength alloy, alloy welding, arc welding, shielded arc welding, automatic welding/AMg6 aluminum alloy

ABSTRACT: This Author Certificate introduces a method of automatic argon-shielded arc welding of high-strength aluminum alloys of the AMg6 type to steel. The steel part is aluminized before welding. According to this method, the arc path is shifted to the aluminum side and the filler wire path to the steel side. In a modification of the method, the edges of the steel part are leveled on both sides at an angle of 70-75 deg without leaving a root face. [MS]

ASSOCIATION: Institut elektrosvarki im. Ye. O. Patona AN UkrSSR (Electric Welding Institute, AN UkrSSR)

Card 1/1

L 3085-66

ACCESSION NR: AP5021986

SUBMITTED: 24Apr64

NO REF SOV: 000

ENCL: 00

OTHER: 000

SUB CODE: MM

ATD PRESS: 4104

0

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Card 2/2

L 3863-66 . EPA(s)-2/EWT(m)/EWP(v)/T/EWP(t)/EWP(k)/EWP(b)/EWA(c) IJP(c) JD/HM'

AM5025576

BOOK EXPLOITATION

UR/

621.791:546.72/74

Rabkin, D. M.^{41.55}; Ryabov, V. R.^{44.55}

Welding of aluminum and its alloys with steel and copper (Svarka alyuminiya i yego splavov so stal'yu i med'yu) Moscow, Izd-vo "Mashinostroyeniye", 1965. 093 p. illus., biblio. 7,000 copies printed.

TOPIC TAGS: metal welding, pressure welding, arc welding, cold welding, butt welding, corrosion resistance, spot welding, aluminum, aluminum alloy, steel, copper, iron aluminum alloy, metal property, seam welding

PURPOSE AND COVERAGE: The brochure presents data gathered from foreign and Soviet sources, and gives the results of research by the authors on various methods of welding aluminum, aluminum alloys to steel, and copper to aluminum. It describes requirements for preparing the surface of steel, aluminum, and copper for various welding methods; the methods and conditions of welding and welding-brazing steel to aluminum and its alloys; and the results of mechanical and metallographic research on ferro-aluminum compounds. It is intended for engineering-technical workers in the field of welding heterogenous metals and alloys.

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L 3863-66
AM5025576

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SUB CODE: MM

SUBMITTED: 19Feb65

NO REF SOW: 020
Joining of dissimilar metals

OTHER: 01A

Card 2/2

L 23416-66 EWT(m)/EWP(w)/EWA(d)/EWP(v)/I/EWP(t)/EWP(k) IJP(c) JD/HM/JH

ACC NR: AP6004135 (N) SOURCE CODE: UR/0125/66/000/001/0010/0014

AUTHOR: Rabkin, D. M.; Dzykovich, I. Ya.; Ryabov, V. R.; Gordan', G. N.

55
51
B

ORG: Institute of Electric Welding im. Ye. O. Paton, AS UkrSSR (Institut elektrosvarki)

TITLE: Distribution of elements in the fusion zone during the welding of aluminum with steel

SOURCE: Avtomaticheskaya svarka, no. 1, 1966, 10-14

TOPIC TAGS: arc welding, bimetal welding, aluminum, steel, phase composition

ABSTRACT: This distribution was investigated by means of microradiographic and x-ray structural analyses for cases of different pre-welding treatment of both metals. Three types of steel-aluminum welded specimens cut out from the zone of transition from Al to steel were investigated: zinc-plated steel St. 3 (thickness of galvanic coating ~40 μ with aluminum AD1 (automatic double-arc welding); steel St. 3 with the Al alloy AMg5V (automatic argon arc welding, coated wire electrodes containing pure aluminum AV000 treated with 2 and 5% Si); alitized steel lKh18N9T with the alloy AMg6 (alitizing performed in pure aluminum AV000, with subsequent argon arc welding with standard coated AMg6 wire). Findings: the welding of zinc-plated steel St. 3 with aluminum AD1 results in a fusion zone containing 38-43% Fe. The constitution diagram

Z

Card 1/2

UDC: 621.791.7:546.621:669.140

L 23416-66

ACC NR: AP6004135

shows that this corresponds to the presence of two phases in the layer: Fe_2Al_3 , located more closely toward iron, and $FeAl_3$, located more closely toward Al. Welding with Si-treated coated wire electrode changes the phase composition of the fusion zone compared with the fusion zone of Zn-treated Fe-Al welds: the amount of the Fe_2Al_5 phase decreases and the width of the intermetallide layer is insignificant. Thus, silicon participates in the formation of the fusion zone by narrowing the region of existence of the most brittle phase Fe_2Al_5 . As for the fusion zone of the welded-joint of alitized -- in pure Al -- steel 1Kh18N9T with Al alloy AMg6, it was found to contain a lower (~24-25%) amount of Fe, which accounts for the particularly high strength of this type of welded joint. Orig. art. has: 2 formulas, 6 figures.

SUB CODE: 11, 13, 20/ SUBM DATE: 12Feb65/ ORIG REF: 007/ OTH REF: 005

Card

2/2 doc

ACC NR: AP6004143

MJW/JD/EM/EM/EM

SOURCE CODE: UR/0125/66/000/001/0076/0077

AUTHOR: Ishchenko, A. Ya.; Rabkin, D. M.56
B

ORG: none

TITLE: Electroslag welding of aluminum and its alloysSOURCE: Avtomaticheskaya svarka, no. 1, 1966, 76-77

TOPIC TAGS: welding, electroslag welding, aluminum, aluminum alloy, aluminum welding, alloy welding/AD aluminum, AMTs alloy, AMg6 alloy, ATsM alloy

ABSTRACT: Electroslag welding of heavy AD⁶ aluminum and AMTs⁶, AMg6⁶ and ATsM⁶ aluminum alloy sections has been performed at the Electric Welding Institute im. Ye. O. Paton. Plates and bars 50—100 mm thick and structural shapes and packs of thin aluminum sheets were welded with a plate electrode. The welds had a dense structure; no porosity, cracks, or other defects were observed. The AMTs alloy welds had a tensile strength of 12.5—13.5 kg/mm², a yield strength of 5.3—6.6 kg/mm², and an elongation of 30.6—36.0%, compared to 13.6—13.8 kg/mm², 6.8—8.0 kg/mm², and 36—40% in the base metal. AMg6 welds had a tensile strength of 25.2—26.4 kg/mm², a yield strength of 13—14 kg/mm², and an elongation of 12.1—17.3%, compared to 26.0—32.9 kg/mm², 14.7—18.4 kg/mm², and 7.5—15.2% in the base metal. ATsM welds had a tensile strength of 37.4—37.8 kg/mm², a yield strength of 35.3—35.4 kg/mm², and an elongation of 6.1—6.8%, compared to 45.7—46 kg/mm², 36.8 kg/mm², and 10.4—10.7%

Card 1/2

UDC: 621.791.756:546.621

L 14018-66

ACC NR: AP6004143

in the base metal. Experiments showed that electroslag welding of aluminum and its alloys can be recommended for making heavy parts from aluminum plates up to 150⁰mm thick. Orig. art. has: 2 figures and 1 table. [ND]

SUB CODE: 11, 13/ SUBM DATE: none/ ATD PRESS: 4/96

Card 2/2 *AC*

L 27199-66 EWT(m)/EWA(d)/EWP(t)/ETI IJP(c) JH/JD

ACC NR: AP6015253

(A)

SOURCE CODE: UR/0125/66/000/005/0074/0075

AUTHOR: Rabkin, D. M.; Bukalo, L. A.; Korzhoval, V. Ya.; Dem'yanchuk, A. S.

30
B

ORG: none

TITLE: Heterogeneity of aluminum-magnesium alloy welds

SOURCE: Avtomaticheskaya svarka, no. 5, 1966, 74-75

TOPIC TAGS: aluminum alloy, magnesium containing alloy, alloy weld, weld property/
AMg3 alloy, AMg6 alloy

ABSTRACT: The nature of the dark areas frequently appearing in x-ray pictures alongside welds, and their effect on the properties of AMg3 and AMg6 aluminum-magnesium alloy welds, have been investigated. Alloy plates 3 or 6 mm thick were TiG-welded with steel backing. In these welds the dark areas were about 0.5 mm wide. The specimens with and without dark areas had roughly the same tensile strength, 32.2 kg/mm² and 31.6 kg/mm². The fracture in both specimens was also similar. Spectral analysis revealed a sharp increase in magnesium content in the location of dark areas: 7.2% instead of 2.8-3.8% for AMg3 alloy and 11% instead of 6% for AMg6 alloy. The microhardness of α -solid solution in the dark area was 77-87 kg/mm² as compared to 60-66 kg/mm² in the weld or in the annealed base metal. Thus, the dark areas are formed as a result of the enrichment of alloy with magnesium. They do not reduce the strength of the weld. Orig. art. has: 4 figures. [AZ]

SUB CODE: 11, 13/ SUBM DATE: none/ ATD PRESS: 4258
Card 1/1 CA UDC: 621.791.019

2

L 35871-66 EWT(m)/EWP(t)/ETI IJP(c) JH/JD/WW/JG/WB
 ACC NR: AP6021486 SOURCE CODE: UR/0413/66/000/011/0128/0128

INVENTOR: Rabkin, D. M.; Yagupol'skaya, L. N.; Langer, N. A.; Dovbishchenko, I. V.;
Nikitina, A. V.; Zotova, L. M.; Martynova, N. A.; Yelagin, V. I.; Ishchenko, A. Ya.;
Bondar', V. V.

ORG: none

TITLE: Filler-wire for argon-shielded arc welding of aluminum.²⁷ Class 49, No. 182487
 [announced by the Electric Welding Institute im. Ye. O. Paton (Institut elektrosvarki)]

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 11, 1966, 128

TOPIC TAGS: welding, aluminum ~~wire~~, arc welding, argon, ~~shielded arc welding~~,
 welding wire, aluminum wire, ~~chromium containing wire~~, ~~zirconium containing wire~~
 corrosion resistance, ~~chromium containing alloy~~, ~~zirconium containing alloy~~

ABSTRACT: This Author Certificate introduces a filler-wire for argon-shielded arc
 welding of aluminum. To improve the weld corrosion resistance, the wire contains
 0.8-1.2% chromium and 0.7-1.2% zirconium.¹⁶ [ND]

SUB CODE: 11, 13/²⁷ SUBM DATE: 25Dec63/⁷ ATD PRESS: 5036

Card 1/1 11/

UDC: 621.791.753.93.042

L 46244-66 EWT(m)/EWP(k)/T/EWP(w)/EWP(v)/EWP(t)/ETI IJP(c) JD/HM/JH
 ACC NR: AP6023915 SOURCE CODE: UR/0363/66/002/007/1206/1212

AUTHOR: Rabkin, D. M.; Cherkashin, Ye. Ye.; Ryabov, V. R.; Zalutskaya, O. I.

ORG: Institute of Electric Welding im. Ye. O. Paton (Institut elektrosvarki); L'vov State University im. I. Franko (L'vovskiy gosudarstvennyy universitet)

TITLE: Study of the phase composition of iron-aluminum welds
 SOURCE: AN SSSR. Izv. Neorg materialy, v. 2, no. 7, 1966, 1206-1212

TOPIC TAGS: weld evaluation, iron compound, aluminum compound

ABSTRACT: Standard Debye powder patterns of the most stable phases of the Fe-Al system were obtained, and the variation of the lattice constant of the α phase with the quantitative content of aluminum was studied. The composition of the intermetallic interlayers in iron-aluminum welds was also investigated. The following series of phases was observed on passing from iron to aluminum: α -Fe - Fe_2Al_5 - (FeAl_3) - Al. It is shown that the weld undergoes brittle failure when the Fe_2Al_5 phase is present in the Fe-Al system, and that the strength of the weld is greater the lower the content of this phase in the interlayer. The Fe_2Al_5 phase was not observed in strong welds alloyed with other metals (Zn, Si, Cu, Ea). The phase composition of the intermetallic interlayers of these welds depends on the qualitative and quantitative composition of the alloyed aluminum filler wire. The following sequence of phases on passing from iron (steel) to aluminum is observed in welds alloyed with zinc (15%): α -Fe

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UDC: 621.791.053:541.412

ACC NR: AP6023915

- Zn - Al; as the zinc content of the filler wire drops, the $FeAl_3$ phase appears. $FeZn_7$ (in welds alloyed with silicon), a small amount of $FeZn_7$ and traces of $FeAl_3$ (in welds alloyed with copper) and traces of $FeAl_3$ (in welds alloyed with barium) were found in addition to iron, zinc, and aluminum in welds alloyed with Si, Cu, and Ba. Precise determinations of the lattice constants of the phases in the welds showed the absence of an appreciable dissolution of other metals in α -Fe; in aluminum, the dissolution of other metals is already substantial, and it is still higher in zinc. Orig. art. has: 2 figures and 5 tables.

SUB CODE: 13/ SUBM DATE: 10May65/ ORIG REF: 008

Joining of dissimilar metals

18

he

Card 2/2

L 04657-67 EMP(k)/E-T(a)/T/EMP(v)/EMP(u)/ETT 101(-) JF/JD/RE

ACC NR: AP6014436

SOURCE CODE: UR/0125/65/000/012/0018/0021

AUTHORS: Dovbishchenko, I. V.; Ignat'yev, V. G.; Rabkin, D. M.

42

ORG: Institute for Electro-welding imeni Ye. O. Paton, AN UkrSSR (Institut elektrosvarki AN UkrSSR)

36

B

TITLE: Welding rod SvAMg7

SOURCE: Avtomaticheskaya svarka, no. 12, 1965, 18-21

TOPIC TAGS: aluminum welding, aluminum alloy, welding rod, magnesium containing alloy, weldability / AMg6 aluminum alloy, SvAMg6 welding rod, SvAMg7 welding rod

ABSTRACT: The optimum composition of welding rods for welding of alloy AMg6 was studied. Three different rod compositions were investigated. The choice of the experimental compositions was based on the following formula for the amount of evaporated magnesium during welding:

$$n = \frac{p_0 N_c Q}{V_0 v_{0a} (P - p_0 N_c)}$$

Here n is the number of moles of the material investigated, p₀ - vapor pressure of pure magnesium, N_c - molar concentration of magnesium in the alloy, Q - flow rate of

Card 1/2

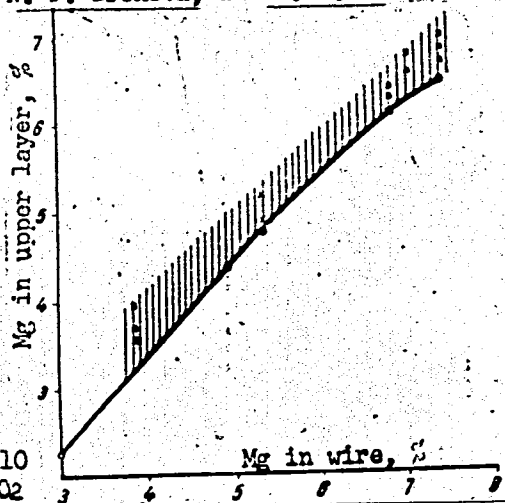
UDC: 621.791.752.046

L 04657-67

ACC NR: AP6011136

argon in l/min, l - weld length = 10.0 cm, $V_0 = 22.41$, v_{cb} - rate of welding, cm/min, P - vapor pressure of magnesium. The experimental results are summarized in graphs and tables (see Fig. 1). It was found that welding rod SvMg7 is superior to type SvMg6 as far as the mechanical strength of the welds is concerned, but that the tendency towards crack formation in the welded joints is similar for both types of welding rods. The following engineers took part in the development of the welding rods: N. A. Martynova, V. V. Solov'yeva, N. P. Dronova, and B. A. Steblovskiy.

Fig. 1. Magnesium² content in the fused metal as a function of its content in the electrode wire.



kh

Orig. art. has: 2 tables and 1 graph.

SUB CODE: 13, 11/ SUBM DATE: 04May65/ ORIG REF: 010

Card 2/2

OTH REF: 002

ACC NR: AP6035756

(A)

SOURCE CODE: UR/0413/66/000/019/0125/0125

INVENTOR: Ishchenko, A. Ya.; Rabkin, D. M.

ORG: none

TITLE: Flux for electroslag welding and deposition of aluminum and aluminum alloys. Class 49, No. 186843 [announced by the Electric Welding Institute im. Ye. O. Paton (Institut elektrosvariki)]

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 19, 1966, 125

TOPIC TAGS: ~~aluminum~~ electroslag welding, ~~aluminum alloy electroslag welding~~, ~~electroslag~~ welding flux, aluminum welding, weld evaluation, metal deposition, potassium chloride, lithium fluoride

ABSTRACT: This Author Certificate introduces a flux containing potassium chloride and lithium and aluminum fluorides for electroslag welding and deposition of aluminum and aluminum alloys. To improve weld quality, the flux composition is set as follows: 10—40% lithium chloride, 0—30% barium chloride, 30—60% potassium chloride, 2—10% lithium fluoride, and 1.5—6.0% aluminum fluoride.

SUB CODE: 13/

SUBM DATE: 19Jan65/

Card 1/1

UDC: 621.791.79.048

ACC NR: AP6035870

(A)

SOURCE CODE: UR/0413/66/000/020/0089/0089

INVENTOR: Rabkin, D. M.; Steblovskiy, B. A.; Ivanova, O. N.

ORG: none

TITLE: Method of increasing the parameters of alternating current. Class 21, No. 187187 [announced by the Institute of Electric Welding im. Ye. O. Paton (Institut elektrosvariki)]

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 20, 1966, 89

TOPIC TAGS: arc welding, metal welding, TIG welding, aluminum welding, ~~aluminum~~
~~and, metal~~ ALTERNATING CURRENT

ABSTRACT: An Author Certificate was issued for a method of increasing the parameters of alternating current in the welding of, for example, aluminum or its alloys. To prolong the service life of tungsten electrodes and to improve arc stability, a direct component is superimposed upon an alternating current with amperage not exceeding 10% of that of the total welding current.

SUB CODE: 13/ SUBM DATE: 20Jan64/

Card 1/1

UDC: 621.791.754. .03-462

SOV/123-59-15-59582

Translation from: Referativnyy zhurnal. Mashinostroyeniye, 1959, Nr 15, p 100 (USSR)

AUTHOR: Rabkin, E.G.

TITLE: A New Automatic Line

PERIODICAL: Opyt raboty prom-sti Sovnarkhoza (Sovnarkhoz Mosk. gor. ekon.-adm. r-na), 1958, Nr 1, pp 21 - 24

ABSTRACT:

A 16-unit 84-spindle automatic line of machine tools (L), 21.4 m long, was manufactured by the Machine Tool Plant imeni Ordzhonikidze for the machining of the gear boxes of tractors. L has 2 sections and consists of 10 multispindle machine tool aggregates: two horizontal milling machines, 4 drilling machines, three drilling and boring machines and one tapping machine. L is fitted with a conveyer for the machine parts, with revolving tables, tilters and chip conveyers. All aggregates of L have a hydraulic drive, and are controlled by a controlling device. The operation order of the mechanisms of L are investigated. L disposes of an electric

Card 1/2

SOV/123-59-15-59582

A New Automatic Line

blocking and a damage finder in the electric circuit. L replaces 26 multipurpose machine tools which were attended by 47 workers. The capacity of L is 20 machine parts/hour at an 80% load. Two workers are in charge of the line in each shift. 4 figures.

T.Ye.I.

Card 2/2

RABKIN, E. M.

138-1-1/16

AUTHOR: Markovich, G. A.

TITLE: New Successes in the Rubber Goods Industry. (K novym uspekham promyshlennosti rezinovykh tekhnicheskikh izdeliy).

PERIODICAL: Kauchuk i Rezina, 1958, Nr.1. pp. 1 - 2 (USSR).

ABSTRACT: A meeting of the workers in the rubber goods industry, the Research Institute of Rezinoprojekt (Rezinoprojekt sovnarkhozov), and the Ministry for the Chemical Industry (Ministerstvo khimicheskoy promyshlennosti) was held in Moscow between 8th - 11th January, 1958. Plans for the development of the industry during 1958-1965, results of research work carried out during 1957 and questions of co-ordination and co-operation of Research Institutes and Engineering and Technical Plants were discussed. Papers were read by E. M. Rabkin, Chief Engineer of the Industry for Rubber Goods, MKHP and S. V. Burov and V. I. Novikov, Supervisors of NIIR and NIIR. A. S. Novikov discussed new types of raw materials and polymers, S. E. Strusevich new textile materials of synthetic and artificial fibres, and A. S. Kuz'minskiy - radiation vulcanisation. The mechanisation and automation of the industry, new uses of synthetic materials etc.

Card 1/2

New Successes in the Rubber Goods Industry.

138-1-1/16

were discussed. In a number of factories vulcanisation presses were automised. The Research Institutes investigated continuous vulcanisation of rubberised fabrics by infra-red rays; the continuous production of rubber cords and tubes; a new machine for making moulded products; new active fillers (Ca silicates, calcium fluoride, precipitated activated chalk etc.). The quality of rubber goods (heat stability, frost resistance, resistance to wear and to deformation etc.) should be improved. It was recommended to start production of the following: accelerators and ultra-accelerators (dithiocarbamates), thiurams, xanthogenates, plasticizers, e.g. Renatsit 4 and 5, peptone 22, plasticizers for low-molecular polymers of the Hycar type (xaukay V-10), coumarone-indene resins, anti-ageing agents, stable pigments and organic and inorganic dyes etc.

AVAILABLE: Library of Congress.

Card 2/2

FILIP'YEV, G.P.; RABKIN, F.S.

Neocene deposits in the Ili Depression. Vest. AN Kazakh. SSR
18 no.6:63-67 Je '62. (MIRA 15:9)
(Ili Valley--Geology, Stratigraphic)

RABKIN, G. L.

FD-2764

USSR/Automatics and telemechanics-transfer functions

Card 1/2

Pub. 10 - 9/11

Author

: Rabkin, G. L.; Mitrofanov, B. A.; Shterenberg, Yu. O. (Leningrad)

Title

: Determining the numerical values of the coefficients of the transfer functions of linearized circuits and systems according to experimental frequency characteristics

Periodical

: Avtom. i telem. ⁵16, Sep-Oct 1955, 488-494

Abstract

: The authors' work is devoted to a procedure for determining the transfer functions of certain types of linearized circuits and systems with the help of experimental frequency characteristics. They present a composite diagram of phase and amplitude frequency characteristics and give formulas for determining the coefficients of transfer functions of circuits and systems under consideration. They present an example of the application of the proposed procedure. Eight references: e.g. I. M. Krassov; Tagayevskaya, A. A.; M. A. Vasil'yeva, "Determining the amplitude-phase characteristics of a regulator by method of rectangular wave," *ibid.*, 14, No 3, 1953; A. A. Tagayevskaya, "Determining the amplitude-phase characteristics of a linear system from its curve of transient process,"

FD-2764

Card 2/2

ibid., 14, No 2, 1953; A. V. Mikhaylov, "Method of harmonic analysis in regulation theory," ibid., No 3, 1938; V. V. Solodovnikov, Vvedeniye v statisticheskuyu dinamiku sistem avtomaticheskogo upravleniya [Introduction to dynamics of automatic control systems], State Tech Press, 52.

Institution : -

Submitted. : February 16, 1954

RABKIN, G L

8(2)

PHASE I BOOK EXPLOITATION

SOV/2030

Vasil'yev, Dmitriy Vasil'yevich, Boris Afanas'yevich Mitrofanov, Grigoriy L'vovich Rabkin, Georgiy Nikanorovich Samokhvalov, Aleksandr Aleksandrovich Semenkovich, Aleksandr Vasil'yevich Fateyev, and Nikolay Ivankovich Chicherin

Raschet sledyashchego privoda (Servodrive Design) Leningrad, Sudpromgiz, 1958.
370 p. 8,000 copies printed. Errata slip inserted.

Resp. Ed.: S. Ya. Berezin; Ed.: Ye. N. Shaurak; Tech. Ed.: P. S. Frankin.

PURPOSE: This book is intended for scientists, engineers, and students of vases.

COVERAGE: This book discusses the problems of designing electromechanical servodrives and gives examples of design from the point of view of the overall system and of the individual basic elements. The design of servodrive amplifiers, the selection and design of error-sensing devices, and the experimental determination of the transfer functions of the discrete links of a servodrive are given considerable attention in the book. Materials on the design of electromechanical servodrives are systematized and the design of servodrives with electronic and magnetic amplifiers and of servodrives with rotating amplifiers is discussed. These designs reflect the practical experiences of the authors in the development of servosystems. The authors

Card 1/5

Servodrive Design (Cont.)

SOV/2030

thank I. A. Petrusenko, I. S. Rayner, N. M. Konovalova, L. A. Agarkova, and Yu. A. Yereneyev for their aid in preparing the book. There are 51 references: 47 Soviet, 1 German, and 3 English.

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Servodrive Design (Cont.)

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7-5. Example of the design of a servodrive with magnetic and rotating amplifiers

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AVAILABLE: Library of Congress

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10-29-59

"APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R001343

tended for researchers and engineers and also for students of higher educational institutions.

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APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R0013438

L 23557-65

ACCESSION NR AML4045085

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SUB CODE: EE

SUBMITTED: 25Jan64

NR REF SOV: 085

OTHER: 013

Card 2/2

PETROVSKIY, B.V., prof.; VANTSYAN, E.N., dotsent; RABKIN, I. Kh. starshiy nauchnyy sotrudnik

Diagnosis of esophageal diverticula and indications for their surgical treatment. Khirurgiya 39 no.12:54-59 D '63 (MIRA 18:1)

1. Iz otdeleniya khirurgii organov pishchevareniya (zav. - dotsent E.N. Vantsyan) i rentgenologicheskogo otdeleniya (zav. I.Kh.Rabkin) Nauchno-issledovatel'skogo instituta klinicheskoy i eksperimental'noy khirurgii (direktor - deystvitel'nyy chlen AMN SSSR prof. B.V. Petrovskiy) Ministerstva zdravookhraneniya RSFSR.

RARKIN, I.G., inshener-polkovnik

Approach maneuver to an invisible target. Vest.Vost.Fl.
no.4:45-48 Ap '60. (MIRA 13:8)
(Air warfare)

PHASE I BOOK EXPLOITATION

SOV/6175

Rabkin, Izrail' Gabriyeliyevich, Colonel of Engineers

Bezopasnost' poletov (Flight Safety). Moscow, Voenizdat M-va oborony SSSR, 1962. 132 p. 10,000 copies printed.

Ed.: K. F. Tresvyatskiy, Lieutenant Colonel; Tech. Ed.: N. Ya. Maslova.

PURPOSE: This book is intended for flight and technical-engineering personnel in all branches of aviation. It may also be used by students in academies and in flight and aviation-technology schools.

COVERAGE: The book analyzes dangerous flying regimes from take-off to landing and the prevention of unsafe conditions.

TABLE OF CONTENTS [Abridged]:

I. Unsafe Regimes and Flight Elements

3

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RABKIN, I.Kh.

In vivo roentgen diagnosis of chronic thrombosis of the large branches
of the pulmonary artery. Vest.rent.i rad. 34 no.5:66-68 S-0 '59.

(MIRA 13:3)

1. Iz 3-y kafedry rentgenologii i radiologii (zav. - prof. I.L. Tager
TSentral'nogo institut a usovershenstvovaniya vrachey (dir - prof. V.P.
Lebedeva).

(PULMONARY ARTERY diseases)
(THROMBOSIS radiography)

RABKIN, I.Kh., aspirant (Moskva, ul. Vostochnaya, korp.2, kv. 85)

Conditions of vessels of the lesser circulation in X-ray pictures in cases of mitral defects; X-ray, clinical, and morphological correlaries. Vest.rent.i rad. 34 no.6:38-46 N-D '59.

1. Iz 3-y kafedry rentgenologii i meditsinskoy radiologii (sav. - (MIRA 13:5)
prof. I.L. Tager) Tsentral'nogo instituta usovershenstvovaniya
vrachey (dir. M.D. Kovrigina).
(MITRAL VALVE, dis.)
(ANGIOGRAPHY)

YESIPOVA, I.K.; KAPULLER, L.L.; RABKIN, I.Kh.

Pulmonary barrier in mitral defects (morphological and roentgenological data on lung biopsies made during operations on the mitral valve). Klin.med. 37 no.8:36-46 Ag '59. (MIRA 12:11)

1. Iz Instituta eksperimental'noy biologii i meditsiny Sibirskogo otdeleniya AN SSSR (dir. - prof.Ye.N.Meshalkin), kafedry rentgenologii (zav. - prof.I.L.Tager) Tsentral'nogo instituta usovershenstvovaniya vrachey i prozektury 52-y Gorodskoy bol'nitsy (glavnyy vrach P.S.Petrushko).

(MITRAL STENOSIS, pathology)

RABKIN, I. Kh., Cand Med Sci -- (diss) "The Condition of Pulmonary Circulatory System During Mitral Heart Defects," Moscow, 1960; 16 pages. (State Scientific-Research Roentgenology-Radiology Institute of the Ministry of Public Health RSFSR); 200 copies; price not given. (KL, 24-60, 135)

TAGER, I.L. (Moskva, Vostochnaya ul., kop.2, kv.85); RABKIN, I.Kh.

Systematization of changes in the vessels of the lesser circulation
in mitral stenosis; x-ray, clinical and morphological comparisons.
Grud. khir. 2 no.4:19-26 Jl-Ag '60. (MIRA 15:6)

1. Iz tret'ey kafedry rentgenologii (zav. - prof. I.L. Tager)
TSentral'nogo instituta usovershenstvovaniya vrachey (dir.
M.D. Kovrigina).

(MITRAL VALVE—DISEASES)
(PULMONARY CIRCULATION)

PETROVSKIY, B.V., prof.; RAHKIN, I.Kh., kand.med.nauk; SOLOV'YEV, G.M.,
kand.med.nauk

Primary pulmonary hypertension. Terap.arkh. no.6:11-18 '61.

(MIRA 15:1)

1. Iz hospital'noy khirurgicheskoy kliniki (dir. - deystvitel'nyy
chlen AMN SSSR prof. B.P. Petrovskiy) I Moskovskogo ordena
Lenina meditsinskogo instituta imeni I.M. Sechenova.
(HYPERTENSION) (PULMONARY ARTERY--DISEASES)

SOLOV'YEV, G. M.; RABKIN, I. Kh. (Moskva)

X-ray determination of the degree of pulmonary hypertension in patients with mitral stenosis. Klin. med. no.8:79-82 '61.

(MIRA 15:4)

1. Iz gospital'noy khirurgicheskoy kliniki (dir. - deystvitel'nyy chlen AMN SSSR prof. B. V. Petrovskiy) I Moskovskogo ordena Lenina meditsinskogo instituta imeni I. M. Sechenova.

(MITRAL VALVE--DISEASES) (BLOOD PRESSURE)
(LUNGS)

PETROVSKIY, B.V.; RAEKIN, I.Kh.; MUSAROVA, A.V.; BELYAKOVA, L.I.

Roentgenocinematographic study in some surgical diseases of the
esophagus. Vop.onk. 7 no.12:38-41 '61. (MIRA 15:1)

1. Iz gospital'noy khirurgicheskoy kliniki (dir. - deystvitel'-
nyy chlen ~~AMN~~ SSSR prof. B.V. Petrovskiy) I Moskovskogo ordena
Lenina meditsinskogo instituta imeni I.M. Sechenova.
(ESOPHAGUS—DISEASES) (CINEFLUOROGRAPHY)

PETROVSKIY, B.V., prof. (Moskva, ul. Gor'kogo, d.56, kv.100); RABKIN, I.Kh.;
BELYAKOVA, L.I.; ZARETSKIY V.V.; KOZLOV, I.Z.

X-ray diagnosis of cardiac aneurysms. Vest.rent.i rad. 36 no.3:3-9
My-Je '61. (MIRA 14:5)

1. Iz gospital'noy khirurgicheskoy kliniki (dir. - deystvitel'nyy chlen
AMN SSSR prof. B.V.Petrovskiy) I Moskovskogo ordena Lenina meditsinskogo
instituta (dir. - chlen-korrespondent AMN SSSR prof. V.V.Kovanov);
(CARDIAC ANEURYSMS)

~~RABKIN, I. Kh.~~, kand. med. nauk (Moskva, Leningradskiy pr., d. 14,
kv. 56)

Tomographic study in coarctation of the aorta. Vest. khir. no.4:
42-43 '62. (MIRA 15:4)

1. Iz gospital'noy khirurgicheskoy kliniki (zav. - prof. B. V.
Petrovskiy) 1-go Moskovskogo ordena Lenina meditsinskogo instituta
im. I. M. Sechenova.

(AORTA--DISEASES) (ANGIOGRAPHY)

PETROVSKIY, B.V., prof.; RABKIN, I.Kh., kand.med.nauk

X-ray cinematographic study in the diagnosis of diseases of the heart and vessels. Kardiologiya 2 no.2:3-13 Mr-Apr '62.

(MIRA 15:4)

1. Iz gospital'noy khirurgicheskoy kliniki (dir. - prof. B.V.Petrovskiy) I Moskovskogo meditsinskogo instituta imeni I.M.Sechenova.
2. Deystvitel'nyy chlen AMN SSSR (for Petrovskiy).
(CARDIOVASCULAR SYSTEM--DISEASES) (CINEFLUOROGRAPHY)

RABKIN, I.Kh.

Pulmonary hypertension with cardiac anomalies. Cor vasa 4 no.3:165-174 '62.

1. Department of Hospital Surgery of the 1st Medical Institute, Moscow, USSR.

(HYPERTENSION, PULMONARY etiology)
(HEART DEFECTS, CONGENITAL complications)

PETROVSKIY, B.V., prof.; SOLOV'YEV, G.M.; RABKIN, I.Kh.; LEBEDEVA, R.N.
MAYOROVA, L.A.

Special methods of diagnosing diseases of the heart and vessels.
Sov. Med. 26 no.9:3-9 S '62. (MIRA 17:4)

1. Iz kafedry gospital'noy khirurgii (zav. - deystvitel'nyy chlen AMN SSSR prof. B.V. Petrovskiy) I Moskovskogo meditsinskogo instituta imeni Sechenova.

RABKIN, I. Kh., kand. med. nauk; GRIGORYAN, E. A.

Determination of the rate of spreading of pulmonary arterial pulse waves in the study of the lesser circulation. Terap. 34 no.1:25-31 '62. (MIRA 15:7)

1. Iz gosital'noy khirurgicheskoy kliniki (dir. - deystvitel'nyy chlen AMN SSSR prof. B. V. Petrovskiy) I Moskovskogo ordena Lenina meditsinskogo instituta imeni I. M. Sechenova.

(BLOOD--CIRCULATION) (PULSE)

RABKIN, I.Kh., kand.med.nauk; SOLOV'YEV, G.M.; GRIGORYAN, E.Ya.

X-ray study of the heart and vessels of the lesser circulation
in thrombosis of the left atrium. Terap.arkh. 34 no.2:25-30
'62. (MIRA 15:3)

1. Iz gospital'noy khirurgicheskoy kliniki (dir. - deystvitel'-
nyy chlen AMN SSSR prof. B.V. Petrovskiy) I Moskovskogo ordena
Lenina meditsinskogo instituta imeni I.M. Sechenova.
(MITRAL VALVE--DISEASES) (CARDIOVASCULAR SYSTEM--RADIOGRAPHY)
(THROMBOSIS)

RABKIN, I.Kh., kand.med.nauk (Moskva, ul.Vostochnaya, d.1/7, korp.2, kv.85)

X-ray diagnosis of aneurysms of the pulmonary artery. Vest.
rent. i rad. 37 no.1:29-32 Ja-F '62. (MIRA 15:3)

1. Iz kafedry gosptal'noy khirurgii (zav. - prof. B.V.
Petrovskiy) I Moskovskogo ordena Lenina meditsinskogo instituta
imeni I.M. Sechenova.

(PULMONARY ARTERY--RADIOGRAPHY)
(ANEURYSMS)

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(HEART--DISEASES)

(CHEST--ABNORMALITIES AND DEFORMITIES)

(HYPERTENSION)

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