ICEBREAKER DESIGN AND CONSTRUCTION

—

FINAL REPORT

on

Library Search for Literature in the Field of

Icebreaker Design and Construction.

by

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Department of Civil Engineering
Duke University
Durham, N.C. 27706

to

Office of Engineering
Naval Engineering Division
U.S. Coast Guard Headquarters
Washington, D.C.

Contract No. Tcg-16,024-A

April 1968

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Introduction

The purpose of this Library Search was to collect, review and make documentation of Eastern European (including German) and Russian literature on the subject of icebreaker design and construction. Special reference was given to structural design, propulsion and to materials and pr cesses used in construction, as well as to physical properties of ice, to icebreaking theory and methods and to problems related to the interaction between the icebreakers and ice. Other pertinent areas, including fracture, fatigue and corrosion resistance were also included.

The work was performed from September, 1966, until April, 1968. The sources of information collected were limited to unclassified serials and books available in American libraries. Generally, publications which appeared between the years 1956 and 1966 were included in the search.

This report describes the main features of the work, its extent, sources and results. It also includes technical information on the documentation and on copyright clearance.

Extent of Work

The main attention was concentrated on a group of selected periodicals, which was modified in course of the work. Many of the journals were available only in the Library of Congress, which thus

became the primary source of material. Among others, the John Hay Library of Brown University was particularly useful, while several other libraries, located in Washington, D.C., New York City, and Boston, have also provided a part of the serials searched.

The periodicals which were searched are listed in Appendix I. With a few exceptions, all issues of the listed journals, as they appeared between 1956 and 1966, were located. In some cases, even a part of the year 1967 was included.

Because of the special nature of the subject, only Russian and German literature was found useful. In fact, most references were taken from Russian journals. Where available, English translations were used instead of the original version.

Results and Documentation

The total number of articles and books which were included in the search amounts to 518. Those were divided into ten subject categories suggested by the U. S. Coast Guard. In each category, references were numbered in sequence. The resulting identification numbers consisted of five digits, as shown in Appendix II. The list gives also the Field and Group numbers according to the Cosati Subject Category List (DoD-Modified) of October, 1965.

The documentation of each article and book included in the search was done in the following manner:

a) Three photostatic copies were made; two for the U. S.

Coast Guard and one to be included in a separate set submitted to the Defense Documentation Center, Cameron Station, Alexandria, Virginia. In some cases, a fourth copy was made for the contractor. Only title pages and lists of contents were copied in case of books and very long articles.

b) Two separate forms were attached to each copy described in a). The first included bibliographical references and an annotated comment to each article, while the second listed pertinent key words. The key words were proposed by the contractor with regard to the nature of the work. They are listed in Appendix III.

The purpose of the annotated comments and key words was to enable an easy evaluation of the contents, level and nature of individual articles. Where pertinent, translation was either recommended or suggested as optional. When a translation was known to exist, its reference was given.

c) Two sets of cards for Libsys Computer Program. Those cards included the identification numbers, bibliographical references, comments and key words for each article, as described in b).

d) One printout of the Libsys Computer Program input. A copy of this printout was included with each shipment of Libsys card input. Another copy is attached in Appendix V.

e) One set of copies of all articles, with their summaries and key words, was submitted to the Defense Documentation Center, Cameron Station, Alexandria, Virginia, 22314, to incorporate the results obtained in this work into DDC holding.

Copyright clearance was obtained for all material which was originally covered, i.e., for all German articles and for the English translations of Russian journals. Appendix IV on copyright includes copies of letters which were mailed to copyright owners and a copy of the Clause 9-203(d) Rights in Technical Data-Specific Acquisition (May 1964). This Clause was enclosed with each request for copyright clearance. Permissions were obtained from all copyright owners and the respective letters are also enclosed in Appendix IV.

Acknowledgement

The author wishes to acknowledge the financial support for this work by the U. S. Coast Guard under contract Tcg 16,024-A.

APPENDIX I

LIST OF SERIALS SEARCHED

A) Russian Scientific and Technical Journals

1. Atomnaya Energija (Russian Journal of Atomic Energy)
2. Avtomaticheskaja Svarka (Russian Journal of Automatic Welding)
3. Doklady Akademii Nauk SSSR (Transactions of the Academy of Sciences of USSR)
4. Fizika Metallov i Metallovedenie (Physics of Metals and Material Science)
5. Gidrotekhnicheskoe Stroitel'stvo (Hydrotechnical Engineering)
6. Izvestija Akademii Nauk SSSR - Mekhanika (Proceedings of the Academy of Sciences of USSR-Mechanics)
7. Izvestija Akademii Nauk SSSR - Energetika i Transport (Energetics and Transport)
8. Izvestija Akademii Nauk SSSR - Seriya Metally (Metals)
9. Izvestija Vysshikh Uchebnych Zavedenij (Proceedings of State Universities), Mashinostroenie (Machine Building)
10. Izvestija Sibirskogo Otdelenija AN SSSR, Seriya Tekhnicheskikh Nauk (Proceedings of the Siberian Section of the Academy of Sciences USSR, Technical Sciences Series)
11. Inzhenernyj Zhurnal (Engineering Journal)
12. Mashinovedenie (Mechanical Engineering)
13. Metallovedenie i Termicheskaja Obrabotka Metallov (Material Science and Heat Treatment)
14. Morskoi Flot (Navy)
15. Morskoi Sbornik (Sea Volume)
16. Problemy Arktiki i Antarktiki (Problems of the Arctic and Antarctic)

17. Rechnoj Transport (River Transport)

18. Sudostroenie (Shipbuilding)

19. Svarochnoe Proizvodstvo (Welding Production)

20. Trudy CNII Morskogo Flota (Leningrad). (Transactions of the Central Scientific Research Institute of the Navy).

21. Trudy CNII Rechnogo Flota (Leningrad). (Transactions of the Central Scientific Research Institute of the River Fleet).

22. Trudy CNII Sudostroitel'noj Proymchlenosti (Leningrad). (Transactions of the Central Scientific Research Institute of Shipbuilding Industry).

23. Trudy Instituta Inzhenerov Vodnogo Transporta (Leningrad). (Transactions of the Institute of Engineers of Water Transportation).

24. Trudy Instituta Vodnogo Transporta (Transactions of the Institute of Water Transportation).

25. Trudy Korablestroitel'nogo Instituta (Leningrad). (Transactions of the Shipbuilding Institute).

26. Uchennye Zapiski Vyshego Arkticheskogo Morskogo Uchilishscha (Leningrad). (Scientific Memoirs of the Arctic and Naval College).

27. Vodnyj Transport - Referativnyj Zhurnal (Water Transport - Journal of Abstracts).

28. Zavodskaja Laboratorija -(Russian Journal Industrial Laboratory).

B) German Technical Journals

29. Jahrbuch der Schiffahrt.

30. Jahrbuch der Schiffbautechnischen Gesellschaft.

31. Schiff und Hafen

32. Schiffbautechnik

Appendix II

LIST OF REFERENCES AS DIVIDED INTO SUBJECT CATEGORIES

08 Earth Sciences and Oceanography
(Cosati 08 10 - Physical Oceanography)

References 08001 - 08007

24 Materials
(Cosati 11 06 - Metallurgy and Metallography
13 08 - Industrial Processes
13 10 - Marine Engineering
20 11 - Solid Mechanics)

References 24001 - 24148

30 Mathematical Sciences
(Cosati 17 - Navigation, Communications Detection and Countermeasures
20 11 - Solid Mechanics)

References 30001 - 30003

37 Navigation, Communications Detection and Countermeasures
(Cosati 17 - Navigation, Communications Detections and Countermeasures)

References 27001 - 37011

45 Mechanical Engineering
(Cosati 20 11 - Solid Mechanics)

Reference 45001

55 Naval Architecture (Design)
(Cosati 13 10 - Marine Engineering)

References 55001 - 55131

65 Ship Construction
(Cosati 13 10 - Marine Engineering)

References 65001 - 65043

75 Ship Propulsion Systems
(Cosati 13 10 - Marine Engineering)

References 75001 - 75078

80 Ice Characteristics
(Cosati 08 12 - Snow, Ice and Permafrost
17 - Navigation Communications Detection and Countermeasures)

References 80001 - 80069

81 Paint and Coatings
(Cosati 11 03 - Coatings, Colorants and Finishes
13 08 - Cathodic Protection)

References 81001 - 81027

Appendix III

LIST OF KEY WORDS

Adhesives

Arctic research

Cathodic protection (2)*

Cavitation

Coatings

Computers programming (2)

Computers use

Corrosion

Corrosion protection (2)

Corrosion resistance (2)

Deicing systems (2)

Experimental methods (2)

Failure

Fracture testing (2)

Fatigue testing (2)

Harbour tugs (2)

Hull construction (2)

Hull design (2)

Hull sheath (2)

Ice characteristics

Ice conditions

Ice conditions forecast

Ice-going ships (2)

Icebreaker name (2)

Icebreakers, History

Icebreakers, Harbor (2)

Icebreakers, Motion (2)

Icebreakers, Pitching equipment (2)

Icebreakers, Polar (2)

Icebreakers, Sea (2)

Icebreaking cargo ships (2)

Icebreaking methods (2)

Icebreaking theory (2)

Icebreaking tugs (2)

Law

Materials, Brittleness (2)

Materials, Gluing (2)

Mathematical methods (2)

Materials selection (2)

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*(2) indicates that both forms of a composed key word were simultaneously used, e.g., cathodic protection and protection, cathodic.

Material specifications (2)

Materials, Shipbuilding (2)

Materials testing

Measurement equipment (2)

Measurement methods (2)

Mechanical properties

Metals gluing (2)

Metals joining (2)

Metals welding (2)

Name Class

Numerical methods (2)

Paints

Photoelasticity

Photoplasticity

Plastics

Plastics, Welding (2)

Power plants, Automation (2)

Power plants, Cooling systems (2)

Power plants, Nuclear (2)

Power plants, Performance tests (2)

Power plants, Selection (2)

Propellers

Propellers, Blades (2)

Propellers, Damage (2)

Propellers, Shafts (2)

Propulsion, Diesel-electric (2)

Propulsion, Nuclear (2)

Propulsion, Steam (2)

Register, Country (2)

Residual stresses

Resistance (Fluid Dynamics)

Resistance, Ice (2)

Note: Use proper term for "Ships" from Thesaurus

Ship name (2)

Ships, Assembly (2)

Ships, Boats (2)

Ships, Communication systems (2)

Ships, Classification (2)

Ships, Construction (2)

Ships, Collision (2)

Ships, Country (e.g. Ice-breakers, Russian. Russian Icebreakers) (2)

Ships, Damage (2)

Ships, Design (2)

Ships, Engines (2)

Ships, Fenders (2)

Ships, Fire protection (2)

Ships, History (2)

Ships, Loading (2)
Ships, Models (2)
Ships, Modernization (2)
Ships, Motion
Ships, Navigation (2)
Ships, Navigation systems (2)
Ships, Operation (2)
Ships, Performance tests (2)
Ships, Power equipment (2)
Ships, Power plants (2)
Ships, Propellers (2)
Ships, Propulsion systems (2)
Ships, Radiation control (2)
Ships, Repair (2)
Ships, Rudders (2)
Ships, Safety equipment (2)
Ships, Specifications (2)
Ships, Stability
Ships, Structural components (2)
Ships, Systems (2)
Ships, Testing (2)
Shipyards, Name (2)
Size effects
Snow characteristics
Statistical analysis
Steels, Carbon (2)
Steel, Economy (2)
Steels, Heat treated (2)
Steels, High strength (2)
Steels, Low alloy (2)
Steels, Alloy
Steels, Low strength (2)
Steels, Medium strength (2)
Steels, Shipbuilding (2)
Structures
Systems, Command
Systems, Communication
Systems, Control
Testing methods (2)
Weldability testing (2)
Welding automatic
Welding equipment
Welding manual
Welding techniques

The key words included in this list were selected, in part, from the Bureau of Ships Thesaurus of Descriptive Terms and Code Book, 2nd edition, March 1965.

Appendix IV

COPYRIGHT

This Appendix contains documents pertinent to copyright clearance of all material which was originally covered by copyright and was included in this work.

The permission to make photostatic copies of material covered by copyright was requested by a letter, the copy of which is shown on the next page, and which was sent to the following organizations:

1) The Instrument Society of America
313 Sixth Avenue
Pittsburgh 22, Pennsylvania
"Russian Journal Industrial Laboratory"

2) The British Welding Research Association
Abington Hall
Cambridge, England
"Russian Journal Automatic Welding"

3) Die Schiffbautechnische Gesellshaft e. V.
Neuer Wall 86
Hambrug 36, Germany
"Schiff und Hafen"
"Jahrbuch der Schiffbautechnischen Gesellschaft"

4) VEB Verlag Technik
Organienburger Strasse 13/14
Berlin C2
German Democratic Republic
"Schiffbautechnik"

5) VEB Verlag fur Verkehrswesen
Französische Strasse 13/14
Berlin W8
German Democratic Republic
"Jahrbuch der Schiffahrt"

80 Rochambeau Avenue
Providence, Rhode Island 02906
August 3, 1967

The Instrument Society of America
313 Sixth Avenue
Pittsburgh 22, Pennsylvania

Dear Sirs:

I would like to ask you for permission to make photostatic copies from your translation of the Russian Journal Industrial Laboratory. The request is being made in connection with a literature survey which I am making for the U. S. Coast Guard on some aspects of icebreaker construction and design.

The exact extent of the permission requested hereby is described in the enclosed clause of my contract with the U. S. Government (9-203(d) Rights in Technical Data-Specific Acquisition, May 1964). The permission should cover all volumes of the said journal published after January 1, 1956. In each case, proper reference to the title and issue of the journal will be made.

I am presently associated with the Division of Engineering at Brown University, Providence, Rhode Island 02912. My new address, as of September 1, 1967, will be:

Professor J. Dvorak
Department of Civil Engineering
Duke University
Durham, North Carolina 27706

I am looking forward to your answer.

Yours very sincerely,

J. Dvorak

JD/mlw
Enclosure

CLAUSE

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November 1, 1967

Professor J. Dvorak
Department of Civil Engineering
Duke University
Durham, North Carolina 27706

Dear Professor Dvorak:

Please forgive the long delay in responding to your letter of August 3rd to The Instrument Society of America concerning your request to make photostatic copies from our translation of the Russian Journal Industrial Laboratory. In recent months the copyright of this journal has been transferred from The Instrument Society to us.

We would be delighted to give you permission to reproduce certain items from our journal, however, before we do so it is necessary for us to have a list of those pages you wish to copy. We look forward to hearing from you.

Sincerely yours,

Robert N. Ubell
Editor
PLENUM PRESS

RNU:ihp

Duke University
SCHOOL OF ENGINEERING
DURHAM, NORTH CAROLINA 27706

DEPARTMENT OF CIVIL ENGINEERING
919—684-2434

NOV 21 1967

November 17, 1967

Mr. Robert N. Ubell
Editor, PLENUM PRESS
Plenum Publishing Corporation
227 West 17th Street
New York, New York 10011

Dear Mr. Ubell:

Thank you very much for your letter of November 1 concerning the permission to make copies from the Russian Journal Industrial Laboratory.

As you have requested, I enclose herewith a list of pages which I would like to copy, Volumes and numbers refer to both the original and translation and pages only to the latter.

I look forward to receiving the permission.

Yours sincerely,

J. Dvorak

JD/lp

Enclosure

Permission Granted
December 29, 1967.

PLENUM PUBLISHING CORPORATION

ALAN R. LISS
VICE PRESIDENT.

Industrial Laboratory

(Zavodskaja Laboratorija)

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BRITISH WELDING RESEARCH ASSOCIATION
ABINGTON HALL CAMBRIDGE Telephone LINTON 591 Telegrams WELDASERCH CAMBRIDGE Telex 81183

14th August, 1967

ARF/JS/756

Prof. J. Dvorak,
Department of Civil Engineering,
Duke University,
Durham,
North Carolina 27706,
USA.

Dear Sir,

Thank you for your letter of 3 August requesting permission to make photostatic copies from our translation of the Russian journal 'Automatic Welding'.

As you may know this work is carried out under a special grant from the British Government, and the translation is therefore Crown copyright.

However, we are prepared to grant permission for you to take copies from the issues you mention (from 1 January, 1956) subject to the usual acknowledgement, i.e.:

> "This copy is made from the Russian journal 'Automatic Welding' translated by the British Welding Research Association for the Department of Education and Science."

Yours faithfully,

A. R. France
Public Relations Officer

Schiffbautechnische Gesellschaft e.V.
Hamburg 36, Neuer Wall 86

Hamburg, August 11, 1967
v.S./L

Professor J. Dvorak, Esq.
c/o Division Of Engineering
Brown University

80 Rochambeau Avenue
Providence
Rhode Island 02906

U. S. A.

Dear Sir:

We thank you for your letter, dated August 3, 1967 and give you permission to make photostatic copies from our journals "Schiff und Hafen and "Jahrbuch der Schiffbautechnischen Gesellschaft ", published after January 1, 1956, regarding icebreaker construction and design.

We kindly ask you to make proper reference to the title and issue of the journal or yearbook in each case.

Yours very sincerely

SCHIFFBAUTECHNISCHE GESELLSCHAFT e. V.

H. F. Seebach

(v. Seebach)
Director and Secretary

Schiffbautechnik

VEB VERLAG TECHNIK

TECHNISCH-WISSENSCHAFTLICHE ZEITSCHRIFT
FÜR ALLE GEBIETE DES SCHIFF- UND SCHIFFSMASCHINENBAUES

DDR-102

BERLIN C 54 ORANIENBURGER STR. 13/14

Herrn
Prof. J. Dvorak
Department of Civil Engineering
Duke University

Durham, North Carolina 27706
USA

Wir bitten, auf Antwortschreiben das Diktatzeichen anzugeben

Ihre Zeichen	Ihre Nachricht vom	Unsere Nachricht vom	Unser Zeichen	Tag
---	3.8.1967	---	224/ ZSb/Me/Sbk	13.9.1967

Betreff

Sehr geehrter Herr Professor !

Bezug nehmend auf Ihr Schreiben vom 3.8.1967 erteilen wir Ihnen die Genehmigung, Fotokopien aus unserer Zeitschrift "Schiffbautechnik" für den von Ihnen genannten Zweck anfertigen zu lassen.

Diese Genehmigung gilt für sämtliche Jahrgänge ab 1956.

Wir möchten Sie noch einmal darauf aufmerksam machen, daß in jedem Fall korrekte Quellenangaben zu machen sind.

Hochachtungsvoll

Wolfram
Stellv. Hauptredakteur

Meding
Verantw. Redakteur

Bitte bei jeder Korrespondenz unsere Zeichen angeben

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Herrn
Professor J. Dvorak
Department of Civil Engineering
Duke University

Durham, North Carolina 27706

U S A

BERLIN, DEN 24. August 1967 1 hze/le

Fotokopien aus "Jahrbuch der Schiffahrt"

Sehr geehrter Herr Professor Dvorak!

Wir erlauben Ihnen hiermit, die von Ihnen gewünschten Fotokopien von Typendarstellungen beziehungsweise Bildveröffentlichungen aus beliebigen Jahrgängen unseres "Jahrbuch der Schiffahrt" vorzunehmen.

Wie Sie schon in Ihrem Schreiben vom 3. August 1967 angeben, bitten wir in diesem Zusammenhang um Angabe der Quelle, wenn eine Veröffentlichung vorgesehen werden soll.

Wir wären Ihnen dankbar, wenn Sie uns im Falle der Veröffentlichung ein Belegexemplar schicken könnten.

Mit freundlichen Grüßen

Heinze
stellv. Cheflektor

80001
BRONFMAN,A.I.

80001 010
80001 101

USE OF COMPRESSED AIR FOR CLEANING OF SHIP R
OUTES FROM ICE.=
RECHNOJ TRANSPORT, 16, DEC 1957, PP. 40-41
THIS IS A SHORT DESCRIPTION OF THE TITLE SUBJE
CT. IT IS BASED ON PRACTICAL EXPERIENCE GAINE
D IN SWEDEN AND ELSEWHERE. THE COMPRESSED AIR
DEVICE IS A PERFORATED TUBE LAYING ON THE BOT
TOM AND CONNECTED TO AN AIR COMPRESSOR. WHEN
AIR IS LED INTO THE TUBE, IT ESCAPES AND THE B
UBBLES CARRY WITH THEM PARTICLES OF WARM WATER
WHICH DISSOLVES THE ICE. HOWEVER, THIS DEVIC
E MAY BE SUCCESSFULLY USED ONLY IN CASES THAT
WATER DOES NOT MOVE MUCH SO THAT THERE ARE WAR
MER LAYERS AT THE BOTTOM. THE BEST USE IS POS
SIBLE ON SOME LAKES IN SWEDEN. THERE, ICE UP
TO 25 IN. WAS DISSOLVED AFTER ABOUT TWO WEEKS
OF WORK OF THE EQUIPMENT. A CHANNEL 17-19 YAR
DS WIDE WAS FORMED. IT IS PROPOSED THAT FOR A
62 MILE LONG CHANNEL, 20 YARDS WIDE, 10 000 C
UBIC YARDS PER HOUR OF AIR. TUBE DIAMETER 1.5
IN., PERFORMATIONS EVERY 15 YARDS. POSSIBLE
USE IN THE SOVIET UNION IS DISCUSSED. TRANSLA
TION OPTIONAL.
ICEBREAKING METHODS
METHODS, ICEBREAKING
80002
CHIKOVSKIJ,S.
A BOOK ON ICE PHYSICS AND ENGINEERING.=
MORSKOJ FLOT, 24, OCT 1964, 1 P.
THIS IS A REVIEW OF A BOOK BY I. S. PESCHANSKI
J, LEDOVEDENIE I SLEDOTECHNIKA WHICH WAS PUBLI
SHED IN 1963 STATE PUBLISHING HOUSE, MORSKOJ T
RANSPORT, ONLY IN 1000 COPIES. NEVERTHELESS,
THE BOOK IS OF HIGH QUALITY AND COVERS RESULTS
OF EXTENSIVE SOVIET RESEARCH ON PHYSICAL PROP
ERTIES AND ENGINEERING ASPECTS OF ICE. THE BO
OK AMOUNTS TO 34K PAGES AND AT LEAST SOME PART
S WERE TRANSLATED BY DIRECTORATE OF PHYSICAL R
ESEARCH, DEFENCE RESEARCH BOARD CANADA (D PHYS
. R (G) REPORT NO. MISC G-18, OCTOBER 1964).
(APPEARS AS A SEPARATE REFERENCE). THIS REVIE
W DISCUSSES THE WHOLE CONTENTS OF THE BOOK AT
SOME LENGTH. TRANSLATION RECOMMENDED.
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ICEBREAKING, THEORY
THEORY, ICEBREAKING
ICEBREAKING METHODS
METHODS, ICEBREAKING
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PESCHANSKIJ,I.S.
ICE-CUTTING SHIPS AND HIGH-PRESSURE WATER JE
TS FOR CUTTING ICE.=
DIRECTORATE OF PHYSICAL RESEARCH, CANADA, REPT
. D PHYS R(G), NO. MISC. G-18, OTTAWA, OCT 196
4, 5 PP.
THIS IS A SHORT TRANSLATED EXTRACT FROM A BOOK
BY THE TITLE AUTHOR ICE PHYSICS AND ENGINEERI
NG, LENINGRAD 1963. FOR A MORE GENERAL REVIEW
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CAVITATION RESISTANCE OF MATERIALS IN MEDIA WITH VARIOUS ADDITIONS.=
TRUDY C.N.I.I. MORSKOGO FLOTA 57, 1964, P. 43-50
THIS IS AN EXPERIMENTAL STUDY PERFORMED ON CAVITATION RESISTANCE OF VARIOUS STRUCTURAL MATERIALS (CAST IRON, STEEL, BRONZE). ALL WERE TESTED BY MEANS OF A MAGNETOSTRICTION GENERATOR IN WATER CONTAINING VARIOUS CAVITATION INHIBITORS. IT IS CONCLUDED THAT EMULSION TYPE ADDITIONS IMPROVE THE CAVITATION RESISTANCE AT MOST.
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RESISTANCE, CORROSION
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THE INFLUENCE OF CORROSION INHIBITORS ON CORROSION-FATIGUE RESISTANCE OF STEEL AND OF CAST IRON.=
TRUDY C.N.I.I. MORSKOGO FLOTA 57, 1964, P. 51-60
THIS IS AN EXPERIMENTAL STUDY IN FATIGUE BEHAVIOR OF SEVERAL STEELS IN A CORROSION ENVIRONMENT OF VARIOUS INTENSITY. THE MATERIALS TESTED WERE A CARBON STEEL, 3 LOW-ALLOY STEELS AND

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[illegible]	24015
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FOUND TO BE VERY HELPFUL. [illegible]	24015
GIVEN FOR INHIBITORS WHICH ARE SUITABLE IN SO	24015
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G IN TENSION.=	24016
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TITLE TOPIC. IT IS SHOWN THAT THE FIRST PLAS	24016
TIC STRAIN CYCLE HAS THE MOST PRONOUNCED INFLU	24016
ENCE ON MECHANICAL PROPERTIES. HOWEVER, UP TO	24016
1000 OF SUCH CYCLES MAY BE APPLIED WITHOUT CA	24016
USING SERIOUS DAMAGE TO THE MICROSTRUCTURE. T	24016
EST RESULTS ARE PRESENTED FOR A CARBON AND FOR	24016
SOME LOW-ALLOY SHIPBUILDING STEELS. IMPLICAT	24016
IONS TO POSSIBLE BRITTLE FRACTURE INITIATION A	24016
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LOW-CYCLE FATIGUE STRENGTH OF SOME SHIPBUILD	24017
ING METALLIC MATERIALS, TESTED IN BENDING.=	24017
TRUDY C.N.I.I. MORSKOGO FLOTA 57, 1964, P. 76=	24017
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THIS IS AN EXTENSIVE EXPERIMENTAL STUDY ON THE	24017
TITLE TOPIC WHICH COVERS MANY STEELS AND ALUM	24017
INUM ALLOYS. LARGE STRAIN AMPLITUDES (UP TO 1	24017
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TLE FRACTURE ARE BRIEFLY REPORTED.	24017
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SHIPBUILDING STEELS	24017
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24018	24018
CHAPKIS,D.T.	24018
ON DECREASE IN YIELD STRENGTH OF THE SHIPBUI	24018
LDING STEEL ST 45 IN TESTS ON WIDE SPECIMENS.=	24018
TRUDY C.N.I.I. MORSKOGO FLOTA 57, 1964, P. 89=	24018
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THIS IS A SHORT ACCOUNT OF EXPERIMENTS WHICH W	24018
ERE PERFORMED TO INVESTIGATE EFFECT OF SIZE ON	24018

MECHANICAL PROPERTIES OF A CARBON STEEL. SPE
CIMENS WERE TESTED IN TENSION. SPECIMENS WERE
METRICALLY SIMILAR IN THE PLANE AND THE WIDTH
WAS CHANGED FROM ABOUT 1.2 IN. TO 63 IN. A 9%
DROP IN YIELD STRENGTH WAS OBSERVED FOR WIDE
SPECIMENS. SOME OTHER RESULTS ON ROUND BARS A
RE SHOWN FOR COMPARISON AND INDICATE THE SAME
TREND WITH EVEN LARGER DIAMS. UP TO 14.5I.
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TESTING, MATERIALS
MECHANICAL PROPERTIES
SIZE EFFECTS
24019
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I. CORROSION-FATIGUE STRENGTH OF STEEL SPEC
IMENS WHICH WERE METALLIZED BY THE STAINLESS S
TEEL 1 KH 18N9T.
TRUDY C.N.I.I. MORSKOGO FLOTA 22, 1959, P. 5-1
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THIS IS AN EXTENSIVE AND INTERESTING PAPER ON
THE TITLE SUBJECT. THE STAINLESS STEEL USED I
S A 18 CR-8NI TYPE WITH TITANIUM. A VARIETY O
F EFFECTS IS INVESTIGATED, INCLUDING SIZE EFFE
CTS. THE MAIN CONCLUSION REMAINS, THAT THE PR
OTECTIVE COATING IS USEFUL ONLY IF FATIGUE CRA
CK INITIATION IS PREVENTED IN THE BASE MATERIA
L. THIS CAN BE ACHIEVED BY INTRODUCTION OF SU
RFACE COMPRESSIVE RESIDUAL STRESSES BY SURFACE
WORKING. IF CRACKS ARE PERMITTED TO BE FORME
D, THE PROTECTION IS OF NO USE. THE CONTEMPL
ATED AREA OF APPLICATION OF THE COATING IS IN
PROPELLER SHAFTS. IT IS CONCLUDED THAT METALL
IZING IS OF LITTLE USE IN SUCH CASES EXCEPT FO
R SHAFTS WITH VERY LOW WORKING LOADS.
FATIGUE TESTING
TESTING, FATIGUE
CORROSION PROTECTION
PROTECTION, CORROSION
COATINGS
24020
ANONYMOUS
II. CORROSION-FATIGUE STRENGTH OF SOME STEE
LS IN SEA WATER.
TRUDY C.N.I.I. MORSKOGO FLOTA 22, 1959, P. 20-
26
THIS IS A SHORT ACCOUNT OF FATIGUE EXPERIMENTS
WHICH WERE PERFORMED IN REVERSED BENDING AND
SPECIMENS WERE EXPOSED TO A CORROSIVE MEDIUM.
13 STEELS OF VARIOUS GRADES WERE TESTED. THE
CORROSIVE MEDIUM WAS A 3% SOLUTION OF NA CL I
N WATER. EARLIER TESTS HAVE SHOWN THAT IT REP
RESENTS A GOOD SUBSTITUTE FOR SEA WATER.
BEST RESULTS WERE OBTAINED WITH AUSTENITIC STA
INLESS STEELS. MARTENSITIC STAINLESS STEEL SH
OWED A DROP IN FATIGUE STRENGTH BY A FACTOR OF
2. HIGH-STRENGTH CARBON STEELS SHOWED WORSE
BEHAVIOR, THE DROP BEING BY A FACTOR OF 10. C
ARBON AND LOW ALLOY STEELS SHOWED A DROP BY A
FACTOR OF 2 TO 4.5. ALL TESTS WERE PERFORMED
FOR ABOUT 10 CYCLES.
CORROSION

FATIGUE TESTING
TESTING, FATIGUE
SHIPBUILDING STEELS
STEELS, SHIPBUILDING
24021
ANONYMOUS
VII. INFLUENCE OF STRESS CONCENTRATORS ON C
ORROSION-FATIGUE STRENGTH OF SOME STEELS AND A
LUMINUM ALLOYS IN SEA WATER.=
TRUDY C.N.I.I. MORSKOGO FLOTA 22, 1959, P. 27-
36=
THIS IS AN INTERESTING STUDY WHICH REVEALS BAS
IC FEATURES OF STRESS-CORROSION DAMAGE TO STEE
LS AND ALUMINUM ALLOYS. IN PRINCIPLE, SHARP S
TRESS CONCENTRATORS FACILITATE FATIGUE DAMAGE
CONSIDERABLY. CORROSION DAMAGE IS BENEFICIAL
PROVIDING THAT IT CAUSES EFFECTIVE BLUNTING OF
STRESS CONCENTRATORS. THIS IS A USUAL CASE I
N STEEL . IN ALUMINUM ALLOYS, HOWEVER, LIKE I
N MOST OTHER CORROSION-RESISTANT ALLOYS, THE C
ORROSION DAMAGE IS LIMITED AND RATHER CONTRIBU
TES TO FAILURE.
INFLUENCE OF VARIOUS FACTORS OF THE FATIGUE CY
CLING REGIME AND OTHER EFFECTS ARE EVALUATED.
FATIGUE TESTING
TESTING, FATIGUE
CORROSION RESISTANCE
RESISTANCE, CORROSION
24022
ANONYMOUS
IV. THE INFLUENCE OF SPECIMEN SIZE ON CORRO
SION-FATIGUE STRENGTH OF STEEL.=
TRUDY, C.N.I.I. MORSKOGO FLOTA 22, 1959, P. 37
-44
EXPERIMENTS ON THE TITLE TOPIC WERE PERFORMED
WITH CARBON STEEL BOTH IN CLEAN AND SALT WATER
. THE EFFECT OF SIZE IS RELATED TO STRESS AMP
LITUDE AND TO THE NUMBER OF CYCLES. SEVERAL T
ENTATIVE CONCLUSIONS WERE REACHED WITH LITTLE
EXPERIMENTAL OR THEORETICAL JUSTIFICATION.
CORROSION
FATIGUE TESTING
TESTING, FATIGUE
SIZE EFFECTS
24023
ANONYMOUS
V. RELATION BETWEEN CORROSION-FATIGUE STREN
GTHS IN BENDING AND IN TORSION.=
TRUDY C.N.I.I. MORSKOGO FLOTA 22, 1959, P. 45-
50
THIS IS A SHORT DESCRIPTION OF SIMPLE EXPERIME
NTS PERFORMED ON SMOOTH SPECIMENS OF MILD STEE
L IN AIR AND IN SALT WATER, RESPECTIVELY. IT
APPEARS THAT THE APPRECIABLE DIFFERENCES OBSER
VED IN AIR TESTS WERE ESSENTIALLY ELIMINATED F
OR TESTS IN SALT WATER, ESPECIALLY FOR LARGER
NUMBER OF CYCLES.
CORROSION
FATIGUE TESTING
TESTING, FATIGUE
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24020 703
24020 704
24020 705
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24024 010

ANONYMOUS
V.I. THE INFLUENCE OF [illegible]
OF STRENGTH OF METALS.=
TRUDY C.N.I.I. MORSKOGO FLOTA 22, 195[illegible], P. 61-
62
THIS IS AN EXTENSIVE AND DETAILED ACCOUNT OF THE TITLE TOPIC. RELEVANT BEHAVIOR IS ANALYZED FOR TESTS IN AIR, SALT WATER AND ALE AT HIGH TEMPERATURES. A LARGE VARIETY OF DATA HAS BEEN COMPILED FOR STEEL, ALUMINUM ALLOYS AND ALSO FOR SOME OTHER METALS. A NUMBER OF USEFUL CONCLUSIONS HAVE BEEN REACHED. APPRECIABLE EFFECTS APPEAR ONLY FOR VERY HIGH FREQUENCIES.
CORROSION
FATIGUE TESTING
TESTING, FATIGUE
24025
ANONYMOUS
VII. CORROSION OF SOME STEELS, CAST IRONS AND OTHER METALS AS A FUNCTION OF VARIABLE SPEED OF A SEA WATER STREAM.=
TRUDY C.N.I.I. MORSKOGO FLOTA 22, 1958, P. 70-
77
THIS IS A DESCRIPTION OF EXPERIMENTS AND ALSO OF METHODS AND FACILITIES USED IN A STUDY OF THE TITLE TOPIC. THE RESULTS ARE REMARKABLY UNIFORM FOR ALL TESTED MATERIALS AND SHOW THAT THE CORROSION RATE INCREASES SHORTLY AT SPEEDS ABOVE 8 METERS PER SECOND AND BECOMES ABOUT 5 TIMES THE THRESHOLD VALUE FOR SPEEDS ABOUT 16 METERS PER SECOND. ONLY SOUTH SPECIMENS WERE TESTED.
CORROSION RESISTANCE
RESISTANCE, CORROSION
TESTING METHODS
METHODS, TESTING
24026
BERSHTEJN, V.A.
VISLEEVA, I.O.
ELIN, I.A.
EPOXY RESINS AND THEIR APPLICATION IN SHIP REPAIR.=
TRUDY C.N.I.I. MORSKOGO FLOTA 25, 1959, P. 3-3

THIS IS A VERY DETAILED DESCRIPTION OF MECHANICAL PROPERTIES OF A NUMBER OF EPOXY RESINS. COMPOSITIONS ARE GIVEN AND RECOMMENDED COMBINATIONS WITH VARIOUS STEELS AND OTHER METALS ARE GIVEN. THE SECOND PART OF THE ARTICLE DESCRIBES RECOMMENDED PRACTICES FOR USE OF SUCH EPOXY MATERIALS IN SHIPBUILDING AND REPAIR.
METALS, GLUING
GLUING, METALS
SHIPS, REPAIR
REPAIR, SHIPS
ADHESIVES
24027
BELOCHUK, G.A.
ARC WELDING OF ALUMINUM AND OF ITS ALLOYS WITH STEEL WHEN A LAYER OF ALUMINIUM IS ATTACHED TO STEEL BY MEANS OF HIGH FREQUENCY CURRENTS.

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[illegible] 24027

[illegible] 24027

[illegible] 24027

[illegible] 24027

[illegible] 24027

CAL [illegible] 24027

GIVEN. 24027

WELDING TECHNIQUES — 24027

METALS, WELDING 24027

WELDING, METALS 24027

24028

BACKOVICH,M.D. 24028

ON CLASSIFICATION AND ON CONDITIONS OF CRACK 24028

ING IN WELDED STRUCTURES.= 24028

TRUDY LENINGRADSKOGO KORABLESTROITELNOGO INST 24028

ITUTA, 36, 1962, P. 19-27 24028

THIS IS A BRIEF DISCUSSION ON CRACKING IN WELD 24028

MENTS. CRACKS ARE DIVIDED INTO HOT, WARM AND 24028

COLD, RESPECTIVELY. THE LATTER = PRESENT LOCA 24028

L BRITTLE FRACTURES. RECOMMENDATIONS FOR PREV 24028

ENTION OF COLD CRACKS ARE REVIEWED. 24028

METALS, WELDING 24028

WELDING, METALS 24028

24029 24029

LABERENZ,A. 24029

MECHANICAL PREPARATION OF SHIPBUILDING STEEL 24029

SURFACES.= 24029

SCHIFF UND HAFEN 14, JUL 1962, P. 609-611 24029

THIS IS A SHORT BUT RATHER DETAILED ACCOUNT ON 24029

PROPER PREPARATION TECHNIQUES OF STEEL SURFAC 24029

ES. 24029

THE MAIN PREREQUISITE IS A COMPLETE REMOVAL OF 24029

THE ROLLING SCALE. THEN, ZINC-BASED PRIMER P 24029

AINTS ARE RECOMMENDED. 24029

CORROSION PROTECTION 24029

PROTECTION, CORROSION 24029

PAINTS 24029

24030 24030

VOLTZ,P. 24030

MODERN SHIPBUILDING AND THE DEVELOPMENT OF S 24030

TEELS.= 24030

JAHRBUCH SCHIFFBAUTECHN GES. 59, 1965, P. 58-6 24030

2 24030

THIS IS A GENERAL LECTURE ON THE TITLE TOPIC D 24030

EALING RATHER WITH THE HISTORY OF THE SUBJECT. 24030

MORE RECENT AND FUTURE TRENDS ARE CONNECTED 24030

WITH THE STEEL ST. 52 (ULTIMATE STRENGTH ABOUT 24030

75 KSI). VARIOUS TECHNOLOGICAL PROBLEMS AND 24030

ADVANTAGES ARE NOTED. 24030

STEELS, MEDIUM STRENGTH 24030

MEDIUM STRENGTH STEELS 24030

SHIPBUILDING STEELS 24030

STEELS, SHIPBUILDING 24030

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ALGEN,K. 24031

ON DEVELOPMENT, PRODUCTION AND TESTING OF SH 24031

IPBUILDING STEELS.= 24031

JAHRBUCH SCHIFFBAUTECHN. GES. 59, 1965, P. 63- 24031

82 24031

THIS IS A DETAILED ACCOUNT OF THE TITLE TOPIC. 24031

A LARGE VARIETY OF LOW ALLOY AND HIGH STRENGTH STEELS IS LISTED AND THEIR PROPERTIES, COMPOSITION AND WELDABILITY ARE EVALUATED. REQUIREMENTS OF VARIOUS REGISTERS ARE LISTED. MODERN PRODUCTION METHODS AND NOTED AN A LIST OF CONTEMPORARY TESTING METHODS, INCLUDING WELDABILITY TESTING, IS MADE. TRANSLATION OPTIONAL.

STEELS, SHIPBUILDING
SHIPBUILDING STEELS
STEELS, MEDIUM STRENGTH
MEDIUM STRENGTH STEELS
TESTING METHODS
METHODS, TESTING

24032

DICK, W.

THE SURFACE OF A SHIPBUILDING STEEL SHEET. A CONTEMPORARY VIEWPOINT.=
JAHRBUCH SCHIFFBAUTECHN. GES. 59, 1965, P. 83-92

THIS IS A SHORT SURVEY ON THE TITLE TOPIC. IT INCLUDES INTERNATIONAL STANDARDS OF DEFINITIONS FOR SURFACES, BASIC PROPERTIES OF ROLLED SURFACES, THE INFLUENCE OF SCALE, MODERN PREPARATION AND PROTECTION OF SURFACES AND POSSIBLE WAYS OF IMPROVEMENTS AS BASED ON RECENT RESEARCH RESULTS. AN EXTENSIVE DISCUSSION IS INCLUDED AND ABOUT 38 REFERENCES LISTED. TRANSLATION OPTIONAL.

COATINGS
CORROSION PROTECTION
PROTECTION, CORROSION
PAINTS
MATERIAL SPECIFICATIONS
SPECIFICATIONS, MATERIAL
STEELS, SHIPBUILDING
SHIPBUILDING STEELS

24033

WEBB, A.W.C.

BRONZE PROPELLERS AND THEIR MAINTENANCE.=
JAHRBUCH SCHIFFBAUTECHN. GES., 59, 1965, P. 93-101

AN ATTEMPT IS MADE TO INDICATE THE MAJOR DIFFERENCES BETWEEN THE THREE MAIN GROUPS OF COPPER-BASE ALLOYS USED FOR LARGE PROPELLER MANUFACTURE. THOSE INCLUDE HIGH-TENSILE BRASSES, ALUMINUM BRONZES AND MANGANESE ALUMINUM BRONZES. SPECIFICATION, REPAIR AND MAINTENANCE PROCEDURES MUST BE FOLLOWED ACCORDING TO THE PROPELLER MATERIAL. IN ENGLISH.

SHIPS, REPAIR
REPAIR, SHIPS
SHIPS, PROPELLERS
PROPELLERS, SHIPS
MATERIALS, SELECTION
SELECTION, MATERIALS

24034

WALLBAUM, H.J.

ON CORROSION RESISTANCE OF COPPER-BASED ALLOYS WITH REGARD TO THEIR USE IN SHIPBUILDING.=
JAHRBUCH SCHIFFBAUTECHN. GES., 59, 1965, P. 111

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[illegible]                                                          24034   502
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CAL REACTIONS [illegible]                                            24034   504
EVENT [illegible]                                                    24034   505
S LIQUID [illegible]                                                 24034   506
ION [illegible] VIEWED. [illegible] SPECIAL ATTEN                    24034   507
TION IS GIVEN TO BASIC [illegible] AND PROTECTION                    24034   508
 AGAINST [illegible]                                                 24034   509
ION RECOMMENDED.                                                     24034   510
CORROSION                                                            24034   701
CORROSION PROTECTION                                                 24034   702
PROTECTION, CORROSION                                                24034   703
CORROSION RESISTANCE                                                 24034   704
RESISTANCE, CORROSION                                                24034   705
COATINGS                                                             24034   706
MATERIALS, SELECTION                                                 24034   707
SELECTION, MATERIALS                                                 24034   708
24035                                                                24035   010
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SUDOSTROENIE, 27, AUG 1961, PP. 14-18
THIS ARTICLE HAS APPEARED IN A SPECIAL NUMBER OF SUDOSTROENIE WHICH REFERS TO ICEBREAKER LENIN ONLY.
IT DESCRIBES IN DETAIL THE DESIGN OF CABINS, DINING ROOM, CLUB, MUSICAL ROOM AND OF OTHER SOCIAL FACILITIES OF THE ICEBREAKER. MATERIALS, COLORS AND VARIOUS DETAILS OF CONSTRUCTION ARE GIVEN. LOCATION OF ALL DESCRIBED ROOMS IS SHOWN ON SKETCHES AND SOME PHOTOGRAPHS OF INTERIORS ARE INCLUDED. SPECIAL ATTENTION IS GIVEN TO PROBLEMS ASSOCIATED WITH LONG NAVIGATION PERIODS. TRANSLATION OPTIONAL.
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LENIN ICEBREAKER
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AGAFONOV,N.A.
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SUDOSTROENIE, 27, AUG 1961, PP. 30-33
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A NEW HARBOR ICEBREAKER.=
SUDOSTROENIE, 26, JAN 1960, PP. 6-8
A NEW ICEBREAKER DESIGNED FOR BOTH HARBOR AND LINE SERVICE IS DESCRIBED. IT BELONGS TO THE INTERMEDIATE CLASS, HAVING ONE FORWARD AND TWO AFT PROPELLERS AND A DIESEL-ELECTRIC FACILITY OF TOTAL OUTPUT 5400 HP. THE DESCRIPTION IS RATHER DETAILED, AND IT CONTAINS ALSO COMPARATIVE DATA OF TEN OTHER PARTLY RUSSIAN ICEBREAKERS OF SIMILAR SIZE. THE GENERAL ARRANGEMENT OF CONSTRUCTION IS MENTIONED, INCLUDING SOME INFORMATION ON MATERIALS USED. HOWEVER, NO INFORMATION ON ALLOY STEELS WHICH HAVE BEEN USED IS DISCLOSED. THE POWER UNIT AND ITS POSSIBLE SERVICE ARRANGEMENTS ARE DISCUSSED. TRANSLATION RECOMMENDED.
LEDOKOL CLASS
ICEBREAKERS, HARBOR
HARBOR, ICEBREAKERS
RUSSIAN ICEBREAKERS
ICEBREAKERS, RUSSIAN
ICEBREAKERS, DESIGN
DESIGN, ICEBREAKERS
ICEBREAKERS, CONSTRUCTION
CONSTRUCTION, ICEBREAKERS
55016
MAKLAKOV,N.T.
ICEBREAKING CARGO SHIPS FOR THE ARCTIC.=
SUDOSTROENIE, 27, JAN 1961, PP. 4-9
THE ARTICLE DESCRIBES IN DETAIL TWO NEW TYPES OF CARGO ICEBREAKERS ANGARA (4 X 2050 HP) AND AMGUEMA (4 X 1800 HP). ATTENTION IS GIVEN TO DESIGN PHILOSOPHY, STRUCTURE, ICEBREAKING CAPACITY (7 FT. OF ICE THICKNESS OR 110 TONS PER METER OF LOAD ALONG THE ENTIRE CONTOUR), EXPLOITATION AND EFFICIENCY FEATURES, POWER EQUIPMENT AND AUTOMATION EQUIPMENT. MANY DRAWINGS AND TABLES ARE INCLUDED. TRANSLATION RECOMMENDED.
ICE-GOING CARGO SHIPS
CARGO SHIPS, ICE-GOING
ANGARA ICE-GOING SHIP
ICE-GOING SHIP ANGARA
AMGUEMA ICE-GOING SHIP
ICE-GOING SHIP AMGUEMA
ICE-GOING SHIPS, DESIGN
DESIGN, ICE-GOING SHIPS
ICE-GOING SHIPS, CONSTRUCTION
CONSTRUCTION, ICE-GOING SHIPS
55017
KHEJSIN,D.E.
STRENGTH DETERMINATION OF STRUCTURES OF ICEBREAKING SHIPS BY CONVERSION FROM A PROTOTYPE.=
SUDOSTROENIE, 27, JAN 1961, PP. 9-14
THE METHOD DESCRIBED EXTENDS THAT OF JU. A. SHIMANSKIJ (1938) AND ENABLES TO COMPUTE STRENGTH OF ICEBREAKER STRUCTURES BY COMPARISON WITH A PROTOTYPE. THE PROCEDURE IS OUTLINED IN CONSIDERABLE DETAIL FOR THE CASE OF ICE PRESSURE ON HULL SIDES DURING SHIP MOTION AND FOR THE C

ASF COMPRESSION OF THE SHIP IN ICE. RECOMMEND 55017 507
ATIONS FOR PRACTICAL COMPUTATION ARE LISTED. 55017 508
AN ILLUSTRATIVE EXAMPLE IS WORKED OUT. TRANSL 55017 509
ATION RECOMMENDED. 55017 510
ICEBREAKERS, CONSTRUCTION 55017 701
CONSTRUCTION, ICEBREAKERS 55017 702
ICEBREAKERS, MODELS 55017 703
MODELS, ICEBREAKERS 55017 704
ICEBREAKERS, DESIGN 55017 705
DESIGN, ICEBREAKERS 55017 706
55018 55018 010
BESSUDNOV,V.M. 55018 101
FADDEEV,O.V. 55018 102
REQUIREMENTS OF CLASSIFICATION REGISTERS ON 55018 201
STRENGTH OF SHIPS NAVIGATING IN ICE.= 55018 202
SUDOSTROENIE, 28, JAN 1962, PP. 7-10 55018 251
THIS IS A VERY USEFUL ARTICLE WHICH COMPARES B 55018 501
ASIC STRUCTURAL REQUIREMENTS OF TEN REGISTERS 55018 502
ON CARGO SHIPS NAVIGATING IN ICE. REQUIREMENT 55018 503
S OF THE FOLLOWING REGISTERS ARE INCLUDED SEA 55018 504
REGISTER OF THE USSR (1956), LLOYD REGISTER O 55018 505
F SHIPPING (1958), BUREAU OF SHIPS (1959), NOR 55018 506
WEGIAN VERITAS (1958) AND OF SIMILAR ORGANIZAT 55018 507
IONS IN FINLAND (1958), FRANCE (1959), GERMANY 55018 508
(1956), JAPAN (1956), POLAND (1957) AND ITALY 55018 509
(1956). A DETAILED COMPARATIVE TABLE IS INCLU 55018 510
DED AND INDIVIDUAL CLASSES ARE BRIEFLY DISCUSS 55018 511
ED. AN EXAMPLE SHOWS A HYPOTHETICAL 10 000 TO 55018 512
N SHIP AND EVALUATES ITS STRENGTH CHARACTERIST 55018 513
ICS ACCORDING TO DIFFERENT REQUIREMENTS. IT A 55018 514
PPEARS THAT THE TOP CLASSES OF THE ENGLISH LLO 55018 515
YD AND OF THE USSR REGISTER ARE SUPERIOR TO TH 55018 516
E GERMAN, NORWEGIAN AND JAPANESE CLASSES. TRA 55018 517
NSLATION RECOMMENDED. 55018 518
ICE-GOING SHIPS, SPECIFICATIONS 55018 701
SPECIFICATIONS, ICE-GOING SHIPS 55018 702
ICE-GOING SHIPS, CONSTRUCTION 55018 703
CONSTRUCTION, ICE-GOING SHIPS 55018 704
55019 55019 010
EVTEEV,V.P. 55019 101
USE OF COMPUTERS IN SHIPBUILDING.= 55019 201
SUDOSTROENIE, 29, MAR 1963. P. 57 55019 251
TWO SHORT SUMMARIES OF ENGLISH ARTICLES ARE GI 55019 501
VEN. 55019 502
THE FIRST ONE DESCRIBES A COMPUTER-OPERATED MO 55019 503
DELING DEVICE WHICH IS USED FOR DESIGN OF NAVI 55019 504
GATION SYSTEMS OF AMERICAN NUCLEAR SUBMARINES. 55019 505
ORIGINAL REFERENCE ELECTRONICS, 35, NO. 12, 55019 506
1962. 55019 507
THE SECOND ONE DEALS WITH USE OF COMPUTERS IN 55019 508
SHIP TURBINE DESIGN. ORIGINAL REFERENCE MARI 55019 509
NE ENGNR. AND NAVAL ARCH., 85, NO. 1035, 1962. 55019 510
COMPUTERS, USE 55019 701
SUBMARINES, NAVIGATION SYSTEMS 55019 702
NAVIGATION SYSTEMS, SUBMARINES 55019 703
PROPULSION SYSTEMS, SHIPS 55019 704
SHIPS, PROPULSION SYSTEMS 55019 705
55020 55020 010
DOROKHOV,A.P. 55020 101
THE ICEBREAKER MOSKVA.= 55020 201

SUDOSTROENIE, 26, OCT 1960, PP. 1-5 55020 251
THIS IS A VERY IMPORTANT ARTICLE WHICH DESCRIB 55020 301
ES IN DETAIL ALL IMPORTANT TECHNICAL DATA OF T 55020 302
HE ICEBREAKER MOSKVA WHICH WAS BUILT IN FINLAN 55020 303
D IN*1960. IT MENTIONS ALSO MATERIALS AND WELD 55020 304
ING PROCEDURES. TRANSLATION RECOMMENDED. 55020 305
MOSKVA ICEBREAKER 55020 701
ICEBREAKER MOSKVA 55020 702
MOSKVA CLASS 55020 703
POLAR ICEBREAKERS 55020 704
ICEBREAKERS, POLAR 55020 705
ICEBREAKERS, DESIGN 55020 706
DESIGN, ICEBREAKERS 55020 707
55021 55021 010
UKHIN,S.I. 55021 101
A BOAT FOR SHIPS NAVIGATING IN ICE.= 55021 201
SUDOSTROENIE, 26, JUN 1960, PP. 30-32 55021 251
THE ARTICLE DESCRIBES A SERVICE BOAT WHICH IS 55021 501
USED ON ICEBREAKER LENIN. IT IS 35 FT. LONG, 55021 502
11 FT. WIDE, CARGO CAPACITY 8.2 TONS, WATER DI 55021 503
SPLACEMENT 10.5 TONS, SPEED 7 KNOTS, OPERATION 55021 504
RANGE (RADIUS) 85 MILES, PROPULSION CAPACITY 55021 505
7.5 HP. IT HAS WELDED STEEL STRUCTURE, DIESEL 55021 506
PROPULSION, SUFFICIENT THERMAL INSULATION, ET 55021 507
C. RADIO AND NAVIGATION FACILITIES ARE ALSO D 55021 508
ESCRIBED. 55021 509
THE BOAT HAS BEEN DESIGNED TO SERVE IN DIFFICU 55021 510
LT POLAR CONDITIONS. IT HAS ALSO LIMITED ICEB 55021 511
REAKING CAPACITY, AND IT OPERATED SUCCESSFULLY 55021 512
IN 2 IN. OF ICE. TRANSLATION OPTIONAL. 55021 513
ICEBREAKER LENIN 55021 701
LENIN ICEBREAKER 55021 702
ICEBREAKERS, BOATS 55021 703
BOATS, ICEBREAKERS 55021 704
BOATS, DESIGN 55021 705
DESIGN, BOATS 55021 706
55022 55022 010
LANK,R.B.,JR. 55022 101
INFLUENCE OF ARCTIC OPERATIONS ON FUTURE SHI 55022 201
P DESIGN.= 55022 202
AMERICAN SOCIETY OF NAVAL ARCHITECTS, 1947, PP 55022 251
. 139-145 55022 252
THE ARTICLE DESCRIBES THE HISTORY OF FIRST AME 55022 501
RICAN ICEBREAKERS (NORTHWIND CLASS), BUILT FOR 55022 502
THE U. S. COAST GUARD. USE OF THESE ICEBREAK 55022 503
ERS BY RUSSIANS DURING THE WWII AND PERFORMANC 55022 504
E DATA ARE MENTIONED. THEN SOME GENERAL COMME 55022 505
NTS ON FUTURE ICEBREAKERS DESIGN AND ON CARGO 55022 506
SHIPS OPERATING IN ICE ARE INCLUDED. 55022 507
AMERICAN ICEBREAKERS 55022 701
ICEBREAKERS, HISTORY 55022 702
HISTORY, ICEBREAKERS 55022 703
ICEBREAKERS, DESIGN 55022 704
DESIGN, ICEBREAKERS 55022 705
ICEBREAKERS, AMERICAN 55022 706
55023 55023 010
MILANO,V.R. 55023 101
NOTES ON ICEBREAKER DESIGN.= 55023 201
J. AMER. SOC. NAVAL ENGNRS., FEB 1962, PP. 43- 55023 251
50 55023 252

THIS IS A PART OF THE AUTHORS M.S.TH.SIS. IT 55023 501
PRESENTS A SHORT ACCOUNT OF ICEBREAKING THEORY 55023 502
AND OF RESULTING REQUIREMENTS ON ICEBREAKERS. 55023 503
FIRST, IT GIVES MEAN SURFACE TEMPERATURES OF 55023 504
ICE IN VARIOUS POLAR AREAS. THIS MEAN SURFAC 55023 505
E TEMPERATURE IS CONSIDERED AS A BASIS FOR COM 55023 506
PARISON OF MECHANICAL PROPERTIES OF ICE. A GR 55023 507
APH OF VERTICAL ICE FORCE VS. TEMPERATURE, CO 55023 508
POSITION AND THICKNESS IS SHOWN. THEN PROPULS 55023 509
ION MACHINERY AND THRUST PREDICTIONS ARE DISCU 55023 510
SSED WITH SPECIAL ATTENTION TO ZERO VELOCITY C 55023 511
ONDITION. THE REMAINING PART IS DEVOTED TO IC 55023 512
EBREAKING THEORY, NAMELY TO ICEBREAKER MOTION 55023 513
IN ICE AND TO ITS ABILITY TO BREAK ICE. 55023 514
ICEBREAKERS, DESIGN 55023 701
DESIGN, ICEBREAKERS 55023 702
ICE CHARACTERISTICS 55023 703
ICEBREAKERS, CONSTRUCTION 55023 704
CONSTRUCTION, ICEBREAKERS 55023 705
ICEBREAKING, THEORY 55023 706
THEORY, ICEBREAKING 55023 707
55024 55024 010
MILANO,V.R. 55024 101
PRELIMINARY VESSEL ESTIMATES IN ICEBREAKER D 55024 201
ESIGN.= 55024 202
J. AMER. SOC. NAVAL ENGNRS., AUG 1962, PP. 505 55024 251
-513 55024 252
THIS PAPER HAS SOME FEATURES IN COMMON WITH RE 55024 501
FERENCE 13062 BY THE SAME AUTHOR. IT DEALS WI 55024 502
TH PRELIMINARY ESTIMATES OF VESSEL LENGTH AND 55024 503
DISPLACEMENT, OF BOLLARD PULL PER SHAFT AND OF 55024 504
VESSEL STABILITY. ALL ESTIMATES ARE BASED ON 55024 505
CONDITIONS RESULTING FROM INTERACTION OF THE 55024 506
BOW AND ICE AND HENCE RELATED TO ICE PROPERTIE 55024 507
S. AN EXTENSIVE EXAMPLE OF A PRELIMINARY ESTI 55024 508
MATE IS GIVEN. 55024 509
ICEBREAKERS, DESIGN 55024 701
DESIGN, ICEBREAKERS 55024 702
ICEBREAKERS, CONSTRUCTION 55024 703
CONSTRUCTION, ICEBREAKERS 55024 704
ICEBREAKING, THEORY 55024 705
THEORY, ICEBREAKING 55024 706
55025 55025 010
ANONYMOUS 55025 101
THE FUJI A NEW ANTARCTIC OBSERVATION SHIP.= 55025 201
JAPAN SHIPBUILDING AND MARINE ENGNG., MAR 1966 55025 251
, PP. 42-44 55025 252
THIS IS ANOTHER DESCRIPTION OF ICEBREAKER FUJI 55025 501
(C.F. REF. 55003). THE ARTICLE GIVES A CONDE 55025 502
NSED DETAILED ACCOUNT OF TECHNICAL DATA OF THE 55025 503
ICEBREAKER. IN ENGLISH. 55025 504
ICEBREAKER FUDJI 55025 701
FUDJI ICEBREAKER 55025 702
ICEBREAKERS, DESIGN 55025 703
DESIGN, ICEBREAKERS 55025 704
55026 55026 010
WAAS,H. 55026 101
ICEBREAKERS WITH PITCHING EQUIPMENT.= 55026 201
VDI ZEITSCHRIFT, 101, NO. 32, NOV 11, 1959, PP 55026 251
. 1499-1502 55026 252

THIS IS A FIRST REPORT REGARDING [illegible] MANIZING THE WORK [illegible] MECHANICAL SINCE 1933. MAINLY IN GERMANY, ON PITCHING EQUIPMENT FOR ICEBREAKERS. SUCH EQUIPMENT CONSISTS USUALLY OF TWO ECCENTRIC WEIGHTS, ROTATING AROUND THE SAME HORIZONTAL AXIS BUT IN OPPOSITE DIRECTIONS. HENCE A VERTICAL OSCILLATING FORCE OF PRESCRIBED MAGNITUDE AND FREQUENCY IS PRODUCED. THIS EQUIPMENT REPLACES HEELING AND TRIMMING TANKS WHICH PRODUCE ONLY STATIC FORCES. THE DYNAMICS OSCILLATING FORCE MAINTAINS PARTLY THE NATURAL PITCH AND ROLL MOTION OF THE SHIP DURING ICEBREAKING AND VIRTUALLY DOUBLES THE ICEBREAKING CAPACITY OF A GIVEN SHIP.
ALTHOUGH SUCH EQUIPMENT HAD BEEN USED ONLY ON RELATIVELY SMALL ICEBREAKERS (3000 HP) AND TUGS, IT IS EXPECTED THAT LARGE ICEBREAKERS MAY BENEFIT AS WELL.
THE FORCED DYNAMIC MOTION OF THE SHIP IN ICE PRODUCES SOMEWHAT DIFFERENT REACTIONS FROM THE SURROUNDING ICE. HENCE, SLIGHTLY DIFFERENT BOW SHAPE IS REQUIRED, NAMELY, 15 DEGREE BOWSTEM SLOPE IS FAVORED. SOME EXAMPLE SECTIONS ARE SHOWN.
ICEBREAKERS, PITCHING EQUIPMENT
PITCHING EQUIPMENT, ICEBREAKERS
ICEBREAKERS, CONSTRUCTION
CONSTRUCTION, ICEBREAKERS
ICEBREAKERS, DESIGN
DESIGN, ICEBREAKERS
55027
ANONYMOUS
THE MACKINAW SECURES OPERATION SPRING.=
FAIRBANKS-MORSE NEWS, 23, NO. 4
THIS IS AN EXPOSITORY ARTICLE WHICH DESCRIBES AN ACTION OF U.S.C.G. ICEBREAKER MACKINAW AND OTHER VESSELS IN THE SPRING OF 1947 DURING WHICH SHIPPING LANES WERE OPEN ON GREAT LAKES AND IN JOINING CHANNELS.
ICEBREAKER MACKINAW
MACKINAW ICEBREAKER
ICEBREAKERS, OPERATION
OPERATION, ICEBREAKERS
55028
WAAS,H.
EFFICIENCY OF MECHANICAL PITCHING PLANTS INSTALLED IN ICEBREAKERS.=
SCHIFFBAUTECHNISCHE GESELLSCHAFT, NOV 1958, PP 2-17
THIS IS A MANUSCRIPT OF A LECTURE BY THE AUTHOR ON PITCHING EQUIPMENT FOR ICEBREAKERS (C.F. 55054). IT DESCRIBES EXTENSIVELY THE FAVORABLE EXPERIENCE WITH PITCHING EQUIPMENT ON ICEBREAKERS WISENT (BUILT IN 1952), LUNDBORN (1955/56), EISFUCHS (1957) AND SEIDENSTEIN. ALTHOUGH THOSE ARE ONLY SMALL ICEBREAKERS (300 TONS, 1000 HP), THE EXPERIENCE SHOWS THAT THEY WERE CAPABLE OF PERFORMING LIKE VESSELS OF TWICE THAT SIZE. HENCE, IT IS NECESSARY TO EQUIP SUCH ICEBREAKERS WITH STRONGER HULLS.

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55027 201
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55027 701
55027 702
55027 703
55027 704
55028 010
55028 101
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55028 501
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THE LECTURE FURTHER DISCUSSES THE THEORETICAL 55028 512
ASPECTS OF SHIP DESIGN WITH RESPECT TO PITCHIN 55028 513
G EQUIPMENT (VIBRATION ANALYSIS, OPTIMUM FREQU 55028 514
ENCY AND AMPLITUDE, ETC.). IT IS EXPECTED THA 55028 515
T EVEN LARGE ICEBREAKERS MAY BE EQUIPPED WITH 55028 516
PITCHING EQUIPMENT. 55028 517
THEORY OF ICEBREAKING IS BRIEFLY DISCUSSED, AN 55028 518
D IT IS SHOWN THAT DYNAMICAL FORCES PRODUCED B 55028 519
Y PITCHING EQUIPMENT ARE MORE EFFICIENT IN ICE 55028 520
BREAKING, CAPABLE OF BREAKING THICKER ICE AND 55028 521
OF PRODUCING SMALLER FLOES. RESULTS OF FIELD 55028 522
AND LABORATORY EXPERIMENTS ARE DISCUSSED. 55028 523
FINALLY, EFFECTS ON CREW ARE DISCUSSED AND CON 55028 524
SIDERED AS NEGLIGIBLE. THE LECTURE SHOULD CON 55028 525
TAIN 15 FIGURES AND THREE MOVIES. NONE OF THO 55028 526
SE IS ATTACHED TO THE MANUSCRIPT. IN ENGLISH. 55028 527
ICEBREAKERS, PITCHING EQUIPMENT 55028 701
PITCHING EQUIPMENT, ICEBREAKERS 55028 702
GERMAN ICEBREAKERS 55028 703
ICEBREAKING, THEORY 55028 704
THEORY, ICEBREAKING 55028 705
ICEBREAKERS, GERMAN 55028 706
55029 55029 010
ANONYMOUS 55029 101
ICEBREAKER JOHN A. MACDONALD.= 55029 201
SUDOSTROENIE, 27, JUL 1961, PP. 76-77 55029 251
THIS IS A SHORT ABSTRACT ON THE TITLE SHIP. IT 55029 501
GIVES BASIC DATA (15 000 HP, 3200 TONS, 95 ME 55029 502
TERS LONG, 21 METERS WIDE, MAX. 16 KNOTS, CRUI 55029 503
SING RADIUS 10 000 MILES AT 10 KNOTS) AND BRIE 55029 504
F DESCRIPTION OF THE PROPULSION AND OTHER SYST 55029 505
EMS. FOR ORIGINAL REFERENCE, SEE MARINE ENGI 55029 506
NEERING (LOG, XII, VOL. XV, NO. 13, 1960 AND C 55029 507
ANADIAN SHIPBUILDING XI, VOL. 32, NO. 2, 1960. 55029 508
ICEBREAKER JOHN A MACDONALD 55029 701
JOHN A MACDONALD ICEBREAKER 55029 702
ICEBREAKERS, DESIGN 55029 703
DESIGN, ICEBREAKERS 55029 704
55030 55030 010
SHIMANSKIJ,JU.A. 55030 101
MAKSIMADZHI,A.I. 55030 102
KOROTKIN,JA.I. 55030 103
NEW RULES FOR CLASSIFICATION AND CONSTRUCTIO 55030 201
N OF STEEL SEA SHIPS OF THE SEA REGISTER OF US 55030 202
SR.= 55030 203
SUDOSTROENIE, 23, JAN 1957, PP. 4-10 55030 251
THIS IS AN EXPERT CRITICAL EVALUATION OF THE N 55030 501
EW RULES OF 1956 WHICH WERE TO REPLACE THE 194 55030 502
0 ISSUE. IT CONTAINS MANY COMMENTS, SOME OF T 55030 503
HEM BEING VERY CRITICAL. OBJECTIONS ARE CONCE 55030 504
NTRATED MAINLY ON PROBLEMS OF HULL DESIGN, AND 55030 505
CONSIDERABLE ATTENTION IS GIVEN TO USE OF STE 55030 506
ELS WITH HIGHER MECHANICAL PROPERTIES. HERE T 55030 507
HE RATIO OF ULTIMATE STRENGTH TO YIELD STRENGT 55030 508
H IS INTRODUCED IN THE RULES FOR USE IN DESIGN 55030 509
FORMULAE. NATURALLY IN THE RULES THIS OBSCUR 55030 510
E RECOMMENDATION IS SEVERELY CRITICIZED, ALSO 55030 511
BECAUSE IT WOULD DISCOURAGE FROM USE OF BETTER 55030 512
STEELS. THERE ARE MANY OTHER COMMENTS WHICH 55030 513
INDICATE THAT THE RULES CONTAIN BOTH MODERN AN 55030 514

D OBSOLETE RECOMMENDATIONS. 55030 511
SHIPS, SPECIFICATIONS 55030 701
SPECIFICATIONS, SHIPS 55030 702
REGISTER, RUSSIA 55030 703
RUSSIA, REGISTER 55030 704
SHIPS, DESIGN 55030 705
DESIGN, SHIPS 55030 706
55031 55031 010
ANONYMOUS 55031 101
ON THE NUCLEAR ICEBREAKER LENIN.= 55031 201
SUDOSTROENIE, 25, NOV 1959, PP. 69-71 55031 251
THIS IS A SHORT NOTE CONTAINING 8 PHOTOGRAPHS 55031 301
OF THE ICEBREAKER, 5 OF THEM SHOW INTERIORS. 55031 302
ICEBREAKER LENIN 55031 701
LENIN ICEBREAKER 55031 702
55032 55032 010
TKACHUK,G.N. 55032 101
FORMULAE FOR RESISTANCE COMPUTATION OF NICHE 55032 201
S AND HOLES IN SHIP HULL.= 55032 202
SUDOSTROENIE, 25, OCT 1959, PP. 9-13 55032 251
THIS IS A DESCRIPTION OF EXPERIMENTAL AND THEO 55032 301
RETICAL STUDIES WHICH YIELD ROUGHNESS COEFFICI 55032 302
ENTS FOR COMPUTATION OF SHIP RESISTANCE. IN PA 55032 303
RTICULAR, VARIOUS NICHES OF RECTANGULAR SHAPES 55032 304
ARE CONSIDERED. 55032 305
RESISTANCE, FLUID DYNAMICS 55032 701
FLUID DYNAMICS, RESISTANCE 55032 702
55033 55033 010
BREGMAN,V.I. 55033 101
NUMERICAL INTEGRATION FORMULAE FOR USE IN CA 55033 201
LCULATIONS OF SHIP STRUCTURES ON COMPUTERS.= 55033 202
SUDOSTROENIE, 25, FEB 1959, PP. 12-14 55033 251
AFTER A SHORT SUMMARY OF PRESENT FORMULAE FOR 55033 301
NUMERICAL INTEGRATION, THE ARTICLE NOTES SPECI 55033 302
AL REQUIREMENTS FOR INTEGRATION OF CERTAIN FUN 55033 303
CTIONS OF THE SHIP SURFACE ALONG THE SHIP LENG 55033 304
TH. THOSE REQUIREMENTS INCLUDE A SUFFICIENT 55033 305
ACCURACY WITHOUT ADDITIONAL ORDINATES, LOCATIO 55033 306
N OF ORDINATES ON THEORETICAL FRAME AXES WHEN 55033 307
20 SECTIONS ARE CONSIDERED. THE NUMBER OF ORD 55033 308
INATES SHOULD BE MINIMUM. 55033 309
A SERIES FORMULA (2) IS GIVEN WITH COEFFICIENT 55033 310
S WHICH ARE OBTAINED AS SOLUTIONS OF A SYSTEM 55033 311
OF LINEAR ALGEBRAIC EQUATIONS (3). ALL DETAIL 55033 312
S ARE GIVEN. AS AN EXAMPLE, AREAS AND CENTERS 55033 313
OF GRAVITY ARE EVALUATED FOR A SET OF ALGEBRA 55033 314
IC CURVES. ALTOGETHER 7 FORMULAE WITH VARIOUS 55033 315
NUMBER OF ORDINATES ARE COMPARED. THOSE DEVE 55033 316
LOPED IN THIS ARTICLE SHOW BEST ACCURACY WITH 55033 317
THE LOWEST NUMBER OF ORDINATES. TRANSLATION O 55033 318
PTIONAL. 55033 319
MATHEMATICAL METHODS 55033 701
METHODS, MATHEMATICAL 55033 702
COMPUTERS, USE 55033 703
SHIPS, DESIGN 55033 704
DESIGN, SHIPS 55033 705
55034 55034 010
SMOLJAKOV,B.N. 55034 101
DETERMINATION OF MINIMUM THICKNESS OF HULL S 55034 201
HELL MADE OF A HIGHER-STRENGTH STEEL.= 55034 202

SUDOSTROENIE, 28, FEB 1962, PP. 7-12 55034 251
THIS ARTICLE CONTAINS RECOMMENDATIONS AND TABL 55034 501
ES FOR SELECTION OF SHELL THICKNESS FOR VARIOU 55034 502
S PARTS OF HULL STRUCTURE OF RIVER AND SEA CAR 55034 503
GO SHIPS RESPECTIVELY. SOME ATTENTION IS PAI 55034 504
D TO RULES OF THE SHIPPING REGISTER OF U.S.S.R 55034 505
. (AND AN OBSOLETE FORMULA FOR THICKNESS REDUC 55034 506
TION IS CONSIDERED, C.F. 55030) DEVIATIONS ARE 55034 507
ALLOWED WITH RESPECT TO CORROSION RESISTANCE, 55034 508
ETC. 55034 509
HIGH STRENGTH STEELS 55034 701
STEELS, HIGH STRENGTH 55034 702
SHIPS, DESIGN 55034 703
DESIGN, SHIPS 55034 704
55035 55035 010
STASHINOV,V.A. 55035 101
EXPERIENCE OBTAINED FROM APPLICATION OF RUBB 55035 201
ER TUG BUMPERS ON ICEBREAKERS.= 55035 202
SUDOSTROENIE, 28, FEB 1962, PP. 57-59 55035 251
THIS IS A SHORT BUT REASONABLY DETAILED DESCRI 55035 501
PTION OF THE TITLE TOPIC. IT IS RECOGNIZED TH 55035 502
AT DURING TOWING AND ICEBREAKING OPERATIONS, T 55035 503
HERE IS A DANGER OF COLLISION OF SHIPS. HENCE 55035 504
, ICEBREAKERS HAVE TO BE EQUIPPED WITH SUITABL 55035 505
E SAFETY EQUIPMENT. RUBBER BUMPERS WHICH ARE U 55035 506
SUALLY USED ON TUGS MAY SERVE FOR THAT PURPOSE 55035 507
. SOME ADJUSTMENTS ARE NECESSARY FOR USE ON I 55035 508
CEBREAKERS. THOSE ARE DESCRIBED (INCLUDING DI 55035 509
MENSIONS) AND A GENERAL DRAWING IS SHOWN. IT 55035 510
IS REPORTED THAT SUCH BUMPERS WERE SUCCESSFULL 55035 511
Y USED ON ICEBREAKER LENIN. TRANSLATION OPTIO 55035 512
NAL. 55035 513
ICEBREAKERS, FENDERS 55035 701
FENDERS, ICEBREAKERS 55035 702
SHIPS, SAFETY EQUIPMENT 55035 703
SAFETY EQUIPMENT, SHIPS 55035 704
ICEBREAKER LENIN 55035 705
LENIN ICEBREAKER 55035 706
55036 55036 010
GUNDORIN,A.A. 55036 101
ICEBREAKER SIBIR IN THE ARCTIC.= 55036 201
SUDOSTROENIE, 28, APR 1962, P. 81 55036 251
THIS IS A VERY BRIEF NOTE ON THE TITLE ICEBREA 55036 501
KER. IT WAS COMPLETELY REBUILT IN 1959. CONS 55036 502
IDERABLE PORTION OF STRUCTURAL PARTS (3000 TON 55036 503
S) WAS REPLACED, AND THE ORIGINAL COAL WAS CHA 55036 504
NGED TO A LIQUID FUEL. THE ICEBREAKER HAS NOW 55036 505
12 000 HP. 8326 TONS DISPLACEMENT, SPEED 13. 55036 506
9 KNOTS AND PERIOD OF INDEPENDENT OPERATION HA 55036 507
S BEEN INCREASED FROM 25 TO 52 WEEKS. 55036 508
ICEBREAKER SIBIR 55036 701
SIBIR ICEBREAKER 55036 702
ICEBREAKERS, MODERNIZATION 55036 703
MODERNIZATION, ICEBREAKERS 55036 704
55037 55037 010
NOGID,L.M. 55037 101
DUBROVIN,D.V. 55037 102
ON VISCOUS RESISTANCE OF ICEBREAKERS.= 55037 201
SUDOSTROENIE, 28, JUN 1962, PP. 10-14 55037 251
THIS IS AN EXTENSIVE AND DETAILED DESCRIPTION 55037 501

OF EXPERIMENTS WHICH WERE PERFORMED IN THE LEN INGRAD SHIPBUILDING INSTITUTE. SCALED MODELS FROM 1 100 TO 1 29 OF THE ICEBREAKER SIBIR WER E TESTED IN A TANK BOTH IN CLEAN WATER AND IN ICE MADE OF PARAFINE. THE RESULTS HAVE SHOWN THAT FOR SIZES FROM 1 60 TO 1 29, THE RESULTS ARE CONSISTENT. RESISTANCE COEFFICIENTS AND O THER DATA HAVE BEEN MEASURED AND GENERALIZED. TRANSLATION RECOMMENDED.
ICEBREAKERS, MODELS
MODELS, ICEBREAKERS
ICEBREAKER SIBIR
SIBIR ICEBREAKER
RESISTANCE, FLUID DYNAMICS
FLUID DYNAMICS, RESISTANCE
55038
ANONYMOUS
AN ICEBREAKING SHIP FOR LAYING AND REPAIRING OF UNDERWATER CABLES.=
SUDOSTROENIE, 28, NOV 1962, PP. 74-75
THIS IS A SHORT SUMMARY OF AN ENGLISH ARTICLE ON THE TITLE SHIP BUILT IN CANADA. FOR ORIGIN AL REFERENCE, SEE SHIPBUILDING AND SHIPPING R ECORD, 99, NO. 14, 1962.
ICE-GOING SHIPS
SHIPS, ICE-GOING
55039
BUBJAKIN,A.A.
DETERMINATION OF THE DIAMETER OF A RUDDER SH AFT FOR ICEBREAKERS AND ICEBREAKING SHIPS.=
SUDOSTROENIE, 23, DEC 1962, PP. 13-15
THIS IS A SHORT BUT DETAILED ARTICLE. IT IS R ECOGNIZED THAT RUDDER SHAFTS ARE OFTEN BENT WH EN INTERACTING WITH ICE. HENCE, DESIGN MUST I NCLUDE SUFFICIENT SAFETY AGAINST BENDING. SIM PLE FORMULAE FOR DESIGN ARE GIVEN AND A NUMBER K DETERMINING THE RELATIVE STRENGTH IS DERIVE D. IT IS SHOWN THAT ICEBREAKERS WITH K 6 SU FFERED SHAFT DAMAGE. A TABLE THEN SHOWS COMPA RATIVE DATA (SHAFT DIAMETER AND YIELD STRENGTH , AREA, AND CENTER OF GRAVITY OF THE RUDDER, S PEED, NUMBER OF SHAFTS AND K) FOR 17 CLASSES O F RUSSIAN ICEBREAKERS AND ICEBREAKING SHIPS. 10 OF THEM HAVE K 6. TRANSLATION RECOMMENDE D.
ICEBREAKERS, RUDDERS
RUDDERS, ICEBREAKERS
ICEBREAKERS, DESIGN
DESIGN, ICEBREAKERS
55040
SMOLJAKOV,V.N.
REDUCTION IN WEIGHT OF SHIP HULLS AS A FUNCT ION OF YIELD STRENGTH OF USED STEELS.=
SUDOSTROENIE, 23, APR 1957, PP. 1-4
THIS IS A RATHER DETAILED ANALYSIS OF THE TITL E SUBJECT. IT IS RECOGNIZED TH REDUCTION IN WEIGHT CANNOT BE PROPORTIONAL TO INCREASE IN YIELD STRENGTH SINCE VARIOUS OTHER FACTORS MUS T BE CONSIDERED IN DETERMINATION OF PROFILE DI MENSIONS. WEIGHT ESTIMATES ARE MADE FOR HYPOT

METICAL SHIPS OF A GIVEN STRUCTURAL ARRANGEMEN	55040	507
T. IT IS SHOWN THAT FOR RIVED CARGO SHIPS, RE	55040	508
ASONABLE WEIGHT REDUCTIONS ARE ACHIEVED WHEN Y	55040	509
IELD STRENGTH IS RAISED FROM 25 TO 35 KG/MM I	55040	510
(35.5 TO 50 KSI). THE RELATIVE REDUCTION DEPE	55040	511
NDS ON OVERALL LENGTH AND AMOUNTS TO 5 PER CEN	55040	512
T FOR L = 40 M, 15 PER CENT FOR L = 60 M, AND	55040	513
25 PER CENT FOR L =	55040	514
SHIPS, DESIGN	55040	701
DESIGN, SHIPS	55040	702
MATERIALS, SELECTION	55040	703
SELECTION, MATERIALS	55040	704
HULL DESIGN	55040	705
DESIGN, HULL	55040	706
55041	55041	010
REJNOV,M.N.	55041	101
THE USE OF COMPUTERS IN SHIP STATICS CALCULA	55041	201
TIONS.=	55041	202
SUDOSTROENIE, 23, MAY 1957, PP. 49-52	55041	251
THIS IS AN EXPOSITORY ARTICLE CONTAINING SOME	55041	501
EXAMPLES OF GENERAL NATURE. THE EXPLANATIONS	55041	502
AND METHODS USED ARE ELEMENTARY. EXAMPLES INC	55041	503
LUDE VOLUME DETERMINATION FROM CROSS-SECTION S	55041	504
HAPE, CENTERS OF GRAVITY, SHIP STABILITY PROBL	55041	505
EMS, ETC. NO DETAILS OR NUMERICAL RESULTS ARE	55041	506
SHOWN.	55041	507
COMPUTERS, USE	55041	701
SHIPS, DESIGN	55041	702
DESIGN, SHIPS	55041	703
55042	55042	010
NAVROCKIJ,D.I.	55042	101
STRENGTH COMPARISON OF WELDED AND RIVETED JO	55042	201
INTS UNDER DYNAMIC LOADING.=	55042	202
SUDOSTROENIE, 23, AUG 1957, PP. 7-11	55042	251
THIS IS A DESCRIPTION OF EXTENSIVE EXPERIMENTS	55042	501
PERFORMED ON STRUCTURAL JOINTS OF ACTUAL SIZE	55042	502
. COMPARISON OF TYPICAL SHAPES AND ARRANGEMEN	55042	503
TS SHOWS THAT RIVETED JOINTS OF EQUAL WEIGHT A	55042	504
S WELDED ONES HAVE ONLY ABOUT 40% OF STRENGTH	55042	505
OF THE LATTER.	55042	506
THIS ARTICLE IS A PART OF EXTENSIVE WORK OF TH	55042	507
E AUTHOR WHO IS WELL KNOWN FOR HIS STUDIES IN	55042	508
STRENGTH OF WELDMENTS.	55042	509
METALS, WELDING	55042	701
WELDING, METALS	55042	702
METALS, JOINING	55042	703
JOINING, METALS	55042	704
55043	55043	010
ANONYMOUS	55043	101
A CLASS OF ICEBREAKING SHIPS.=	55043	201
SUDOSTROENIE, 28, NOV 1962, P. 77	55043	251
THIS IS A SHORT ACCOUNT OF PAPERS WHICH HAVE A	55043	501
PPEARED IN HOLLAND SHIPBUILDING, 10, JULY 1961	55043	502
, AND 11, MAR 1962, RESPECTIVELY.	55043	503
ICEBREAKING CARGO SHIPS RITVA DAN AND BRITA DA	55043	504
N ARE DESCRIBED. DATA LENGTH 98.5 M, BREADTH	55043	505
14M, DEPTH FROM UPPER DECK 8 M, DRAUGHT UNDER	55043	506
LOAD 6.6 M, DEAD WEIGHT 3750 TONS, SPEED 14.5	55043	507
KNOTS, SKIN THICKNESS AT WATERLINE 25 MM (1 I	55043	508
N.) AT STERN AND 18 MM (0.7 IN.) SIDES. A MAI	55043	509

N DIESEL ENGINES OF 260 HP AT 17. R/MIN. THE
DIRECT-CURRENT GENERATORS ARE 210 KVA AT 440 V.
ICE-GOING SHIP
DIESEL-ELECTRIC ICE-GOING SHIP
ICE-GOING SHIP, BRITISH
BRITISH ICE-GOING SHIP
ICE-GOING SHIPS, DESIGN
DESIGN, ICE-GOING SHIPS
55044
▶ WLENKO,E.E.
ON RATIONAL DISTRIBUTION OF SHIP LOAD FROM T
HE GENERAL STRENGTH VIEWPOINT.=
SUDOSTROENIE, 23, 1957, PP. 3-8
THIS IS A DESCRIPTION OF A METHOD FOR RATIONAL
DISTRIBUTION OF A GIVEN LOAD IN INDIVIDUAL PA
RTS OF A SHIP. GENERAL STRENGTH IS TAKEN AS A
CRITERION. FIRST, THE METHOD IS EXPLAINED WH
EN SPECIAL DIAGRAMS FOR CONTROL OF SHIP LOAD A
RE AVAILABLE. THE CASE OF EQUIPMENT WEIGHT AN
D THAT OF CARGO WEIGHT ARE CONSIDERED SEPARATE
LY. THEN APPROXIMATE FORMULAE ARE GIVEN WHEN
DIAGRAMS ARE NOT AVAILABLE. ALL ARE VERY SIMP
LE, AS IS THEIR EXPLANATION.
SHIPS, LOADING
LOADING, SHIPS
SHIPS, DESIGN
DESIGN, SHIPS
55045
SCHMIDT,O.
JULIUS D. A. MARXEN AND ADOLPH A. H. FOKKES,
ANOTHER TWO DIESEL-ELECTRICAL PILOT BOATS IN
THE HAMBURG HARBOR.=
SCHIFF UND HAFEN, NOV 1957, 4 PP.
THIS IS A DETAILED DESCRIPTION OF TWO IDENTICA
L PILOT BOATS. THEY ARE 21 M LONG, BREADTH 5.
2 M, DEPTH 2.75 M, DRAUGHT 2.35, 260 HP AT 180
R/MIN, 10.7 KNOTS. SCHEMATIC DRAWINGS, PHOTO
GRAPHS AND TABLES ARE INCLUDED. SPECIAL ATTEN
TION IS PAID TO PROPULSION SYSTEM PRODUCED BY
THE AEG COMPANY.
BOATS, DESIGN
DESIGN, BOATS
BOATS, PROPULSION SYSTEMS
PROPULSION SYSTEMS, BOATS
55046
JUNG,H.
HARBOR AND SEA TUGS MICHEL AND W. TH. STRATM
ANN.=
SCHIFF UND HAFEN, JAN 1956, 11 PP.
THIS IS A VERY DETAILED AND EXTENSIVE DESCRIPT
ION OF THE TWO TUGS WHICH WERE THE FIRST ONES
EQUIPPED WITH A DIESEL-ELECTRIC PROPULSION IN
HAMBURG AND GERMANY. DATA LENGTH 28.9 M, BRE
ADTH 7.60 M, DEPTH 3.9[illegible], DRAUGHT 3.25 M, 1000
HP AT 180 RPM, DISPLACEMENT 342 TONS. PULL UP
TO 25 TONS. THE ARTICLE CONTAINS MANY DETAIL
ED DRAWINGS, PHOTOGRAPHS AND TABLES. THE POWE
R EQUIPMENT AND PROPULSION ARE DESCRIBED WITH
SPECIAL CARE.
TUGS, DESIGN

55043 [illegible]
55043 [illegible]
55043 [illegible]
55043 702
55043 703
55043 704
55043 705
55043 706
55044 010
55044 101
55044 201
55044 202
55044 251
55044 501
55044 502
55044 503
55044 504
55044 505
55044 506
55044 507
55044 508
55044 509
55044 510
55044 701
55044 702
55044 703
55044 704
55045 010
55045 101
55045 201
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55045 203
55045 251
55045 501
55045 502
55045 503
55045 504
55045 505
55045 506
55045 507
55045 701
55045 702
55045 703
55045 704
55046 010
55046 101
55046 201
55046 202
55046 251
55046 501
55046 502
55046 503
55046 504
55046 505
55046 506
55046 507
55046 508
55046 509
55046 510
55046 511
55046 701

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DESIGN, ICE-                                                    55046   702
ICE-, PROPULSION SYSTEMS                                        55046   703
PROPULSION SYSTEMS, ICE-                                        55046   704
55047                                                           55047   010
RUMYANSKIJ,O.A.                                                 55047   101
  A HARBOR ICE-BREAKING FERRY.=                                 55047   201
SUDOSTROENIE, 31, AUG 1965, PP. 3-6                             55047   251
THIS IS A DESCRIPTION OF AN ICE-BREAKING FERRY                  55047   501
FOR PASSENGERS AND VEHICLES TRANSPORTATION IN                   55047   502
HARBORS. ITS NAME IS KAMONERIC AND THE DATA I                   55047   503
S AS FOLLOWS CLASS OL * P 4/I S OF THE USSR R                   55047   504
EGISTER, LENGTH 40M, BREADTH 10M, DEPTH 4.2 M,                  55047   505
 DRAUGHT 2.5 M, DISPLACEMENT (WITH LOAD) 516 T                  55047   506
ONS, LOAD CAPACITY 65 TONS (84 PASSENGERS). D                   55047   507
IESEL-ELECTRIC PROPULSION, TWO PROPELLER ENGIN                  55047   508
ES (FORWARD AND AFT) GIVE 312 KW AT 420 RPM.                    55047   509
MANY DETAILS ARE GIVEN AND DRAWINGS ARE INCLUD                  55047   510
ED. TRANSLATION OPTIONAL.                                       55047   511
ICE-BREAKER KAMONERIC                                           55047   701
KAMONERIC ICE-BREAKER                                           55047   702
ICE-BREAKERS, DESIGN                                            55047   703
DESIGN, ICE-BREAKERS                                            55047   704
55048                                                           55048   010
ANONYMOUS                                                       55048   101
  A NEW ICE-BREAKING STEAMER MAGGA DAN.=                        55048   201
MORSKOJ FLOT, 17, JUL 1957, PP. 28-30                           55048   251
A DETAILED DESCRIPTION OF THE STEAMER IS GIVEN                  55048   501
.  IT HAS BEEN BUILT IN AND FOR DENMARK.  IT M                 55048   502
EETS ICE-BREAKING REQUIREMENTS OF THE ENGLISH L                 55048   503
LOYD AND OF THE FINNISH AL ICE CLASS (I.E. THE                  55048   504
 SKIN MUST BE OVER 1 IN. THICK).  IT CAN CARRY                  55048   505
 36 PASSENGERS AND HENCE MEETS ALL SAFETY REQU                  55048   506
IREMENTS FOR PASSENGER SHIPS.  DATA  LENGTH 75                  55048   507
 M, BREADTH 13.7 M, LOAD CAPACITY 62 500 CUBIC                  55048   508
 FEET, SPEED 12 KNOTS.  IT HAS SOME INTERESTIN                  55048   509
G FEATURES AND EQUIPMENT.  ITS COLOR IS BRIGHT                  55048   510
 RED.  IT HAS SOPHISTICATED NAVIGATION EQUIPME                  55048   511
NT, TWO INDEPENDENT RADARS, AUTOMATIC SMOKE SI                  55048   512
GNALIZATION SYSTEM.  MANY PARTS OF EQUIPMENT A                  55048   513
RE DOUBLED.                                                     55048   514
ICE-BREAKERS MAGGA DAN                                          55048   701
MAGGA DAN ICE-BREAKER                                           55048   702
ICE-BREAKERS, DESIGN                                            55048   703
DESIGN, ICE-BREAKERS                                            55048   704
55049                                                           55049   010
CHASHKOV,M.T.                                                   55049   101
KREJMER,I.D.                                                    55049   102
  SHIP-BUILDING COMPUTATIONS ON COMPUTERS.=                     55049   201
SUDOSTROENIE, 31, FEB 1965, PP. 79-80                           55049   251
THIS IS AN EXTENSIVE AND DETAILED REVIEW OF A                   55049   501
RECENT BOOK BY REJNOV, M. N., BREGMAN, V. I.,                   55049   502
MOSKALENKO, V. M., NAKHIMOVICH, E. N., PETROV,                  55049   503
 E. JU, MOSHENSKIJ, N. L. AND AKSENOV, E. M.                    55049   504
THE BOOK APPEARED UNDER THE TITLE NAME AND WAS                  55049   505
 EDITED BY REJNOV, M. N. IN THE PUBLISHING HOU                  55049   506
SE SUDOSTROENIE IN 1964.  THE ACCOUNT INDICATE                  55049   507
S THAT THE BOOK IS MODERN, WELL WRITTEN, CONTA                  55049   508
INS MANY EXAMPLES AND DEALS WITH IMPORTANT TOP                  55049   509
ICS.  TRANSLATION RECOMMENDED.                                  55049   510
COMPUTERS, USE                                                  55049   701
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COMPUTERS, [illegible]
PROGRAMMING, COMPUTER
55050
ENG,G.
  ICEBREAKERS OF HIGHER CAPACITY ARE NEEDED FO
R FAR EAST AND NORTH.=
MORSKOJ FLOT, 25, FEB 1965, P. 44
THE INTERESTING PART OF THIS ARTICLE IS THAT I
T GIVES SOME DATA OF A LEDOKOL (ICEBREAKER) CL
ASS OF ICEBREAKERS WHICH HAS APPEARED ONLY ON
PHOTOGRAPHS IN SUDOSTROENIE JOURNAL. AS OF TH
E DATE OF THIS ARTICLE, 6 SUCH ICEBREAKERS HAV
E BEEN BUILT PROBABLY BY THE ADMIRALTEJSKIJ SH
IPYARD IN LENINGRAD. FURTHER SHIPS WILL BE BU
ILT. PRINCIPAL DATA: LENGTH 67.63M, BREADTH M
AX. 18.06 M, DISPLACEMENT 2000 TONS, CAPACITY
ON AFT PROPELLERS 4800 HP, SPEED 14.8 KNOTS.
DIESEL-ELECTRIC PROPULSION. THE ARTICLE WAS W
RITTEN BY A CREW MEMBER (ELECTROTECHNICIAN) WH
O SERVED ON LEDOKOL 1 AND LEDOKOL 3. HE STATE
S THAT THE LEDOKOL CLASS HAS NOT SUFFICIENT CA
PACITY FOR EFFECTIVE ICEBREAKING OPERATIONS ES
PECIALLY IN WINTER. HE SAYS THAT TWO CLASSES
SHOULD BE CONSTRUCTED, ONE 5400 HP WHICH COULD
 BE USED IN HARBORS DURING WINTER AND A 7200 H
P CLASS FOR REGULAR WINTER USE ON THE NORTHERN
 SEA WAY. THEN HE CRITICIZES SOME DESIGN FEAT
URES OF THE LEDOKOL CLASS, PARTICULARLY THE FO
RWARD PROPELLER. TRANSLATION RECOMMENDED.
LEDOKOL CLASS
ICEBREAKERS, OPERATION
OPERATION, ICEBREAKERS
55051
TARSHIS,M.K.
  ICE LOADS SUPPORTED BY A SHIP.=
RECHNOJ TRANSPORT, 16, DEC 1957, PP. 19-22
THIS IS A RATHER DETAILED STUDY WHICH ANALYSES
 FORCE ACTION ON A SHIP DURING A) IMPACT LOADS
 GENERATED BY ICE FLOES OR BY COMPACT FLAT ICE
 FIELD AND B) COMPRESSION LOADS. BOTH CASES A
RE EXPLAINED AND SOLVED IN DETAIL. ENERGY BAL
ANCE METHODS ARE USED THROUGHOUT. A NUMERICAL
 EXAMPLE IS INCLUDED. TRANSLATION RECOMMENDED
.
HULL DESIGN
DESIGN, HULL
ICEBREAKERS, LOADING
LOADING, ICEBREAKERS
55052
MAKSIMADZHI,A.
NOVIKOV,O.
SOKOLOV,L.
  ON THICKNESS ADDITIONS FOR WEAR AND CORROSIO
N IN DESIGN OF CARGO SHIP HULLS OF LOW-ALLOY S
TEEL.=
MORSKOJ FLOT, 19, MAR 1959, PP. 12-16
THE TITLE TOPIC IS CONSIDERED FROM THE VIEWPOI
NT OF OVERALL ECONOMY OF THE SHIP. COMPARISON
S OF EQUALLY STRONG SHIPS MADE OF A MILD STEEL
 AND OF A 50 KSI STEEL, RESPECTIVELY, ARE USED

[illegible] 55052 [illegible]
[illegible] 55052 [illegible]
[illegible] 55052 [illegible]
[illegible] 55052 [illegible]
HULL - [illegible] 55052 702
DESIGN, HULL 55052 702
STEELS, LOW ALLOY 55052 702
LO ALLOY STEELS 55052 704
HULL SHEATH 55052 705
SHEATH, HULL 55052 706
55053 55053 010
RUZIEV,A. 55053 101
RYVLIN,A. 55053 102
ON CALCULATIONS OF ICEBREAKER RESISTANCE IN FINELY BROKEN ICE.= 55053 201
MORSKOJ FLOT, 21, AUG 1961, PP. 36-38 55053 202
THE TERM FINELY BROKEN ICE REFERS TO ICE COVERAGE CONSISTING OF FLOES SMALLER THAN 20 METERS IN HORIZONTAL DIRECTION. ARCTIC ICEBREAKERS DO NOT BREAK SUCH ICE BUT ONLY PUSH IT APART. EMPIRICAL FORMULAE HAVE BEEN DEVELOPED FOR TWO DENSITIES OF FINELY BROKEN ICE. THEY GIVE A RESISTANT COEFFICIENT AND SHOW REASONABLE AGREEMENT WITH ACTUAL MEASUREMENTS ON ICEBREAKERS. TRANSLATION RECOMMENDED. 55053 251
ICEBREAKERS, MODELS 55053 301
MODELS, ICEBREAKERS 55053 302
ICE CHARACTERISTICS 55053 303
RESISTANCE, ICE 55053 304
ICE, RESISTANCE 55053 305
55054 55053 306
LAVROV,V. 55053 307
POZNJAK,I. 55053 308
PRINCIPLES OF ICE FORMATION IN RESERVOIRS OF COOLING WATER.= 55053 309
MORSKOJ FLOT, 23, JUN 1963, PP. 21-22 55053 701
THIS IS A DETAILED DESCRIPTION OF THE TITLE TOPIC WITH SPECIAL ATTENTION TO SHIPS NAVIGATING IN ICE. SOME THERMODYNAMICAL CONSIDERATIONS ARE INCLUDED, AND MEASURES FOR PREVENTION ARE GIVEN QUANTITATIVELY. TRANSLATION OPTIONAL. 55053 702
ICE CHARACTERISTICS 55053 703
ICE-GOING SHIPS, DESIGN 55053 704
DESIGN, ICE-GOING SHIPS 55053 705
55054 55054 010
SUPRUN,L.A. 55054 101
A METHOD FOR DESIGN OF ELECTRO-CHEMICAL CORROSION PROTECTION OF SUBMERGED PARTS OF SHIP HULLS.= 55054 102
SUDOSTROENIE, 27, APR 1961, PP. 5-9 55054 201
THIS IS A DETAILED ARTICLE ON THE TITLE TOPIC. IT GIVES THE ENTIRE COMPUTATION SCHEME FOR ELECTRO-CHEMICAL PROTECTION OF HULLS WITH REGARD TO USE OF SPECIAL COATINGS AND PAINTS WHICH CONTRIBUTE FAVORABLY TO UNIFORM POTENTIAL DISTRIBUTION. THE PROCEDURE IS OUTLINED AND EXPLAINED IN ALL DETAIL, AND AN EXAMPLE IS WORKED OUT. CHEMICAL COMPOSITION, TREATMENT AND PROPERTIES OF PROTECTIVE PAINTS ARE ALSO INCLUDED. TRANSLATION OPTIONAL. 55054 202
55054 251
55054 301
55054 302
55054 303
55054 304
55054 305
55054 701
55054 702
55054 703
55055 010
55055 101
55055 201
55055 202
55055 203
55055 251
55055 301
55055 302
55055 303
55055 304
55055 305
55055 306
55055 307
55055 308
55055 309
55055 310

CORROSION, [illegible]
PROTECTION, CORROSION
HULL, STEEL
PLATES, STEEL
PAINTS
COATINGS
55056
EVTEEV,V.P.
MAKSIMOV,V.A.
  SOME TRENDS IN USE OF COMPUTERS IN SHIPBUILD
ING.=
SUDOSTROENIE, 30, FEB 1964, PP. 67-68
THIS IS A REVIEW ARTICLE ON THE TITLE TOPIC AN
D IS BASED ON FOUR ENGLISH AND ONE GERMAN REFE
RENCE.
COMPUTERS, USE
55057
MOGILEVICH,V.I.
KASKOV,S.I.
  A WHALING VESSEL FOR THE ANTARCTIC.
SUDOSTROENIE, 23, FEB 1957, PP. 8-14
THIS IS AN EXTENSIVE ARTICLE ON A NEW WHALING
SHIP. HISTORY OF WHALING INDUSTRY AND SOME CO
MPARABLE VESSELS IN USE THROUGHOUT THE WORLD A
RE MENTIONED. TECHNICAL DATA: MAXIMUM LENGTH
218 M, MAX. BREADTH 28 M, DEPTH 19M, DRAUGHT 1
0 M, WATER DISPLACEMENT WITH FULL LOAD 43,800
TONS. TWO DIESEL-ELECTRIC UNITS OF 7500 HP CA
PACITY, SPEED 16 KNOTS. THE STRUCTURE IS WELD
ED. MILD CARBON STEEL WAS USED FOR THICKNESSES
 UP TO 14 MM (0.55 IN) AND A MANGANESE CARBON
STEEL FOR HIGHER THICKNESSES. NO ICE STRENGTH
ENING IS MENTIONED. DETAILED DRAWINGS OF CROS
S-SECTION AND SEVERAL SCHEMES ARE INCLUDED.
ICE-GOING, SHIPS
SHIPS, ICE-GOING
55058
SHAROV,JA.F.
  IMPACT OF THE BOTTOM OF A SHIP WITH AN APPRO
ACHING WAVE.=
SUDOSTROENIE, 24, APR 1958, PP. 8-9
THIS IS AN INTERESTING AND DETAILED ARTICLE WH
ICH DESCRIBES IMPACT OF AN INFINITE SHEET ON E
LASTIC FOUNDATION WITH CALM WATER SURFACE. IT
 IS ASSUMED THAT THE SUPPORTED SHEET FALLS ONT
O THE WATER WITH VELOCITY VO AND THEN THE RIGI
D BASE OF THE PLASTIC FOUNDATION DECELERATES U
NIFORMLY. THE EQUATION OF MOTION IS DERIVED A
ND SOLVED. RESULTS COMPARE FAVORABLY WITH EXP
ERIMENTAL FIELD OBSERVATION. FOR A MORE DETAI
LED ACCOUNT, SEE APPLIED MECH. REV 14, 1961,
P. 77, REF. 568.
SHIPS, DESIGN
DESIGN, SHIPS
SHIPS, LOADING
LOADING, SHIPS
55059
BARON,V.A.
GLOTOV,JU.G.
  A SEA ICEBREAKING FERRY.=

[illegible]	[illegible]	251
[illegible]	[illegible]	501
[illegible]	[illegible]	502
[illegible]	[illegible]	503
[illegible]	[illegible]	504
[illegible] ... OF	[illegible]	505
[illegible] ... ALL [illegible]	[illegible]	506
[illegible]	[illegible]	507
[illegible] ... TRANSLAT	[illegible]	508
[illegible]PTIONAL.	55059	509
[illegible] SYSTEMS	55059	701
SYSTEMS. ICEBREAKER	55059	702
55060	55060	010
[illegible]	55060	101
A SIMPLIFIED METHOD FOR COMPUTATION OF WIND	55060	201
VELOCITY WHICH A SHIP CAN RESIST.=	55060	202
SUDOSTROENIE, 24, FEB 195[illegible], PP. [illegible]	55060	251
THIS IS A DETAILED EXPLANATION OF A SIMPLIFIED	55060	501
APPROACH TO COMPUTATION OF A MAXIMUM ANGLE OF	55060	502
INCLINATION AND OF THE LIMITING VALUE OF THE	55060	503
WIND FORCE. THE METHOD IS BASED ON COMPARISO	55060	504
N OF A DIAGRAM OF THE INCLINATION MOMENT WITH	55060	505
A DIAGRAM OF MOMENTS OF STATIC STABILITY. GRA	55060	506
PHS, FORMULAS, AND AN ILLUSTRATIVE EXAMPLES AR	55060	507
E GIVEN.	55060	508
SHIPS, DESIGN	55060	701
DESIGN, SHIPS	55060	702
SHIPS, LOADING	55060	703
LOADING, SHIPS	55060	704
55061	55061	010
DEVNIN,S.I.	55061	101
RAKHMANKULOV,I.M.	55061	102
RATIONAL ARRANGEMENT OF A RUDDER IN A STREAM	55061	201
OF A HEAVILY LOADED PROPELLER.=	55061	202
SUDOSTROENIE, 27, JUL 1961, PP. 13-15	55061	251
THIS IS A SHORT BUT DETAILED THEORETICAL STUDY	55061	501
ON THE TITLE TOPIC. IT IS CONCLUDED THAT THE	55061	502
RUDDER SHOULD BE LOCATED AS CLOSELY AS POSSIB	55061	503
LE TO THE PROPELLER. A METHOD FOR EVALUATION	55061	504
OF THE LIFTING FORCE OF A RUDDER IS OUTLINED I	55061	505
N DETAIL.	55061	506
SHIPS, RUDDERS	55061	701
RUDDERS, SHIPS	55061	702
PROPELLERS	55061	703
55062	55062	010
GULIEV,JU.M.	55062	101
EXPERIMENTAL INVESTIGATION OF WATER RESISTAN	55062	201
CE DURING ROLL OF A SHIP.=	55062	202
SUDOSTROENIE, 23, JUN 1957, PP. 9-11	55062	251
THIS IS BOTH AN EXPERIMENTAL AND THEORETICAL I	55062	501
NVESTIGATION ON THE TITLE SUBJECT. THE LAW OF	55062	502
WATER RESISTANCE AS FUNCTION OF ANGULAR VELOC	55062	503
ITY OF ROLL IS EXPRESSED IN FORM OF A QUADRATI	55062	504
C BINOMINAL. A PROCEDURE IS OUTLINED WHICH ENA	55062	505
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SED. SIMILAR ATTENTION IS GIVEN TO WELDING OF	65004	310
STERN AND STERN STRUCTURES AND TO WELDING OF	65004	311
PIPELINES.	65004	312
ICEBREAKER LENIN	65004	701
LENIN ICEBREAKER	65004	702
ICEBREAKERS, CONSTRUCTION	65004	703
CONSTRUCTION, ICEBREAKERS	65004	704
ICEBREAKERS, ASSEMBLY	65004	705
ASSEMBLY, ICEBREAKERS	65004	706
WELDING TECHNIQUES	65004	707
65005	65005	010
ANDREEVA,N.A.	65005	101
BERNACKIJ,G.V.	65005	102
ALEKSEENKO,A.P.	65005	103
SPECIAL DRILLING EQUIPMENT USED IN CONSTRUCT	65005	201
ION OF THE NUCLEAR ICEBREAKER LENIN.=	65005	202
SUDOSTROENIE, 26, APR 1960, PP. 52-56	65005	251
VARIOUS SPECIAL DRILLING MACHINES WHICH HAVE B	65005	301
EEN USED FOR MACHINING DIRECTLY ON THE SHIP AR	65005	302
E DESCRIBED. THIS APPEARED NECESSARY IN CASE	65005	303
OF LARGE-SIZE PARTS. PROPELLER SHAFTS, STERN	65005	304
STRUCTURE, AND SUPPORTS OF SHIP EQUIPMENT ARE	65005	305
DISCUSSED IN PARTICULAR. THE ARTICLE DESCRIBE	65005	306
S THE TOPIC IN CONSIDERABLE DETAIL, INCLUDING	65005	307
MANY TECHNICAL DATA, TECHNOLOGY AND DRILLING O	65005	308
PERATIONS PERFORMED.	65005	309
LENIN ICEBREAKER	65005	701
ICEBREAKER LENIN	65005	702
ICEBREAKERS, ASSEMBLY	65005	703
ASSEMBLY, ICEBREAKERS	65005	704
65006	65006	010
ANONYMOUS	65006	101
A SHIP FOR POLAR REGIONS.=	65006	201
MOTOR BOATS FOR ICEBREAKERS.=	65006	202
SUDOSTROENIE, 26, JAN 1960, P. 78	65006	251
THESE ARE TWO SHORT ABSTRACTS OF ARTICLES WHIC	65006	301
H HAVE APPEARED ELSEWHERE.	65006	[illegible]
THE FIRST ONE REFERS TO A GERMAN CARGO SHIP DE	65006	
SIGNATED FOR NAVIGATION IN ICE. FOR ORIGINAL	65006	[illegible]
REFERENCE, SEE HANSA 7, NO. 30/31, 1959.	65006	303
THE SECOND ONE DESCRIBES LIGHT BOATS MADE OF R	65006	306
EINFORCED PLASTICS AND USED ON U.S. ICEBREAKER	65006	307
S. ORIGINAL REFERENCE IS BUREAU OF SHIPS JOUR	65006	308
NAL, VI, VOL. 8, NO. 2, 1959.	65006	309
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SHIPS, ICE-GOING	65006	702
ICEBREAKERS, BOATS	65006	703
BOATS, ICEBREAKERS	65006	704
65007	65007	010
KLOPOTOV,B.E.	65007	101

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OM THE HISTORY OF THE ADMIRALTEJSKIJ SHIPYARD)
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AN OUTLINE HISTORY OF THE ADMIRALTEJSKIJ SHIPYARD IN LENIN 65007 501
GRAD SINCE 1712 IS GIVEN. SOME ATTENTION IS PA 65007 502
ID TO THE CONSTRUCTION OF ICEBREAKER LENIN, SO 65007 503
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ONED AND NAMES OF MANY PERSONS PARTICIPATING I 65007 505
N THIS PROJECT ARE GIVEN. 65007 506
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HISTORY, ICEBREAKERS 65007 702
ADMIRALTEJSKIJ SHIPYARD 65007 703
SHIPYARD, ADMIRALTEJSKIJ 65007 704
65008 65008 010
ANONYMOUS 65008 101
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A SHORT HISTORY OF RUSSIAN ICEBREAKER DESIGN I 65008 501
S GIVEN. PRIORITY IS ATTRIBUTED TO THE PIONEE 65008 502
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ONSTRUCTED THE FIRST ICEBREAKER PAULOT IN 1862 65008 504
 BY REMODELING A REGULAR HARBOR STEAMER. 13 R 65008 505
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ICEBREAKERS, RUSSIAN 65008 704
65009 65009 010
ANONYMOUS 65009 101
CONSTRUCTION OF THE NUCLEAR ICEBREAKER.= 65009 201
SUDOSTROENIE, 23, JAN 1957, PP. 11-14 65009 251
THIS IS A PRELIMINARY ARTICLE DESCRIBING MAIN 65009 501
CONSIDERATIONS AND STRUCTURAL FEATURES OF THE 65009 502
LENIN ICEBREAKER. 65009 503
THE ADVANTAGE OF THE NUCLEAR PROPULSION LIES B 65009 504
OTH IN THE LENGTH OF INDEPENDENT NAVIGATION AN 65009 505
D IN MAINTAINING THE RATIO OF POWER CAPACITY T 65009 506
O WATER DISPLACEMENT. THIS RATIO (44 000 HP. 65009 507
 TO 16 000 TONS = 2.8) IS PROPORTIONAL TO THE 65009 508
ICEBREAKING CAPACITY AND WAS LOWER THAN ONE ON 65009 509
 OLD STEAM ICEBREAKERS. COMPARATIVE NAVIGATIO 65009 510
N PERIOD OF A DIESEL-ELECTRIC ICEBREAKER OF TH 65009 511
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WELDING PROCEDURES ARE MENTIONED. TRANSLATION 65009 516
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LENIN ICEBREAKER 65009 702
ICEBREAKERS, CONSTRUCTION 65009 703
CONSTRUCTION, ICEBREAKERS 65009 704
65010 65010 010
GUNDOBIN,A.A. 65010 101
 STABILITY OF MODERNIZED, RE-EQUIPPED SHIPS.= 65010 201
SUDOSTROENIE, 29, JAN 1963, PP. 62-64 65010 251
THE INTERESTING PART OF THIS ARTICLE IS THAT D 65010 501
EALING W[illegible] THE ICEBREAKER SIBIR WHICH [illegible]S COV 65010 502

PLETELY REBUILT IN 1959. ITS DISPLACEMENT IS 65011 201
6681 TONS. NO OTHER DATA IS GIVEN. 65011 202
ICEBREAKER CAMSELL 65011 701
SHIP ICEBREAKERS 65011 702
ICEBREAKERS, MODERNIZATION 65011 703
MODERNIZATION, ICEBREAKERS 65011 704
65011 65011 800
ANONYMOUS 65011 100
NEW CANADIAN ICEBREAKERS.= 65011 201
SUDOSTROENIE, 26, JUN 1960, PP. 68-69 65011 251
THIS IS A SHORT SUMMARY OF TWO ENGLISH ARTICLE 65011 501
S ON NEW CANADIAN ICEBREAKERS. 65011 502
THE FIRST ONE DEALS WITH A 4250 HP ICEBREAKER 65011 503
CAMSELL. ORIGINAL REFERENCE CANADIAN SHIPPIN 65011 504
G AND MARINE ENGNR. MENS XII, 1959. 65011 505
THE SECOND ONE DESCRIBES A 15 000 HP ICEBREAKE 65011 506
R, JOHN A. MACDONALD. THIS WAS THE LARGEST CA 65011 507
NADIAN ICEBREAKER AS OF 1960. ORIGINAL REFERE 65011 508
NCE SHIPPING REGISTER AND SHIPBUILDER, VOL. X 65011 509
LII, NO. 12, 1959. 65011 510
CANADIAN ICEBREAKERS 65011 701
ICEBREAKER CAMSELL 65011 702
CAMSELL ICEBREAKER 65011 703
ICEBREAKER JOHN A. MACDONALD 65011 704
JOHN A. MACDONALD ICEBREAKER 65011 705
ICEBREAKERS, CANADIAN 65011 708
65012 65012 110
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RUSSIA S ICEBREAKERS.= 65012 201
REFERENCE UNKNOWN, PP. 137-152 65012 251
THIS IS AN EXTENSIVE SURVEY ARTICLE WHICH COVE 65012 501
RS THE HISTORY OF DEVELOPMENT OF ICEBREAKERS O 65012 502
PERATED AND PARTLY BUILT IN RUSSIA BETWEEN 190 65012 506
0 AND 1960. EQUAL CONSIDERATION IS GIVEN TO T 65012 504
ECHNICAL DATA AND TO POLITICAL AND ECONOMICAL 65012 507
BACKGROUND. IN ENGLISH. 65012 507
RUSSIAN ICEBREAKERS 65012 701
ICEBREAKERS, HISTORY 65012 702
HISTORY, ICEBREAKERS 65012 703
ICEBREAKERS, RUSSIAN 65012 704
65013 65013 010
MORLEY,J.P. 65013 101
ICEBREAKERS, THEIR CONSTRUCTION AND USE.= 65013 201
REFERENCE UNKNOWN, PP. 6-12 65013 251
THIS ARTICLE DESCRIBES SHORTLY THE HISTORY OF 65013 507
ICEBREAKING SHIPS AND MODERN TRENDS OF DEVELOP 65013 508
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HE MOSKVA CLASS ICEBREAKER. IN ENGLISH. 65013 510
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MOSKVA CLASS 65013 703
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ON.= 65014 202
J. AMER. SOC. NAVAL ENGNRS., AUG 1962, PP. 571 65014 251
-580 65014 252
THIS ARTICLE CONTAINS SHORT SUMMARIES FROM SOV 65014 501
IET SERIALS. A LARGE VARIETY OF TOPICS IS INC 65014 502
LUDED. ALSO A SHORT GENERAL PARAGRAPH ON ICEB 65014 503

[illegible] 65014 500
[illegible] 65014 501
[illegible] 65014 502
[illegible] 65014 503
[illegible] 65014 504
[illegible] 65014 505
[illegible] 65014 506
[illegible] 65014 507
[illegible] 65014 508
[illegible] 65014 509
[illegible] 65014 510
RUSSIAN ICEBREAKERS 65014 701
ICE-GOING SHIPS 65014 702
SHIPS, ICE-GOING 65014 703
ICEBREAKERS, RUSSIAN 65014 704
65015 010
CARPELL,P.A. 65015 101
MARINE ENGINEERING NOTES FROM THE SOVIET PRE 65015 201
SS.= 65015 202
J. AMER. SOC. NAVAL ENGNRS., FEB 1962. PP. 71- 65015 251
82 65015 252
THIS IS ANOTHER ARTICLE OF THE AUTHOR BASED ON 65015 501
SUMMARIES FROM SOVIET SERIALS. AGAIN, ALMOST 65015 502
NO REFERENCES ARE GIVEN. A VARIETY OF TOPICS 65015 503
IS TREATED, INCLUDING VERY SHORT NOTES ON DAM 65015 504
AGE TO SEVAN CLASS ICE-STRENGTHENED SHIPS BUIL 65015 505
T IN FINLAND IN 1945. THEN THERE IS A SHORT D 65015 506
ESCRIPTION OF A CLASS OF OCEANOGRAPHIC SHIPS B 65015 507
UILT IN FINLAND IN 1958 FOR USE IN THE ARCTIC. 65015 508
THOSE, HOWEVER, ARE VERY SMALL (400 HP, 810 65015 509
TONS) SHIPS WITH WOODEN HULLS. 65015 510
RUSSIAN ICEBREAKERS 65015 701
ICE-BREAKERS, DAMAGE 65015 702
DAMAGE, ICEBREAKERS 65015 703
ICEBREAKERS, RUSSIAN 65015 704
65016 010
GERMAIN,E. 65016 101
NORTH TO THE PASSAGE.= 65016 201
STEELWAYS, REFERENCE UNKNOWN, PP. 2-5 65016 251
THIS SHORT ARTICLE DESCRIBES SOME RECENT DEVEL 65016 501
OPMENT OF CANADIAN ICEBREAKERS. IT MENTIONS C 65016 502
ONSTRUCTION OF A NEW 24 000 HP TRIPLE SCREW ST 65016 503
EAM TURBOELECTRIC ICEBREAKER WHICH SHALL BE 36 65016 504
6 FEET LONG AND HAVE 13 300 TONS. NO DETAILS 65016 505
ARE GIVEN. NEEDS FOR ICEBREAKING IN CANADA AR 65016 506
E REVIEWED. 65016 507
CANADIAN ICEBREAKERS 65016 701
ICEBREAKERS, CANADIAN 65016 702
65017 010
PAVLOV,A.I. 65017 101
GLUING OF SHIP METALLIC STRUCTURES.= 65017 201
SUDOSTROENIE, 25, DEC 1959, PP. 36-41 65017 251
THIS IS AN EXPOSITORY ARTICLE ON GLUING OF MET 65017 501
ALS. SOME TYPICAL JOINTS ARE SHOWN AND RELEVA 65017 502
NT FORMULAE FOR STRENGTH COMPUTATION LISTED. 65017 503
MAIN ATTENTION IS GIVEN TO EPOXY RESINS AND SO 65017 504
ME APPLICATIONS ARE NOTED. 65017 505
METALS, GLUING 65017 701
GLUING, METALS 65017 702
65018 010
VASILEV,L.G. 65018 101
FOREIGN DESIGN AND CONSTRUCTION OF MILITARY 65018 201
AND CARGO SHIPS WITH NUCLEAR POWER PLANTS.= 65018 202
SUDOSTROENIE, 23, MAY 1957, PP. 59-62 65018 251

THIS IS A SUMMARY OF ABOUT 2 [illegible] ARTICLES ON THE TITLE TOPIC. IT INCLUDES U. S. NUCLEAR SUBMARINES AND STEAMSHIPS AND OTHER SSN AND SSGN SUBMARINES. OTHER MILITARY AND CIVILIAN VESSELS AND PLANTS WHICH WERE CONSIDERED OR ACTUALLY CONSTRUCTED IN 1956 IN ENGLAND, FRANCE, GERMANY, SCANDINAVIA AND IN JAPAN.
SHIPS, POWER PLANTS
POWER PLANTS, SHIPS
PROPULSION, NUCLEAR
NUCLEAR, PROPULSION
65019
SAFONOV,A.I.
EXPERIENCE WITH USE OF AUTOMATIC WELDING FOR VERTICAL SITE WELDS OF SHIP HULLS.=
SUDOSTROENIE, 23, NOV 1957, PP. 31-34
THIS IS A PRACTICAL ACCOUNT OF APPLICATION OF AUTOMATIC WELDING TECHNIQUES FOR VERTICAL JOINTS. THE PROCEDURE IS DESCRIBED IN DETAIL. THE APPARATUS IS NOT. IT IS CONCLUDED THAT BOTH ARC AND SUBMERGED ARC WELDING IS APPLICABLE AND RESULTING PROPERTIES OF JOINTS MEET THE REQUIREMENTS OF THE USSR REGISTER. THE MAIN EFFECT IN LABORSAVING RESULTS FROM THE FACT THAT NO STRAIGHTENING OF WELDED PARTS OF HULL SHELL IS NECESSARY.
WELDING, AUTOMATIC
AUTOMATIC, WELDING
HULL, CONSTRUCTION
CONSTRUCTION, HULL
METALS, WELDING
WELDING, METALS
65020
ZABOTIN,V.F.
VYCHEGZHANIN,A.A.
AUTOMATIC VERTICAL WELDING IN TANKER CONSTRUCTION.=
SUDOSTROENIE, 22, NOV 1956, PP. 28-30
THIS IS A PRACTICAL ACCOUNT OF THE TITLE TOPIC. IT IS SHOWN THAT AN AUTOMATIC WELDING MACHINE A-433, WHICH WAS DEVELOPED BY THE E. O. PATON (WELDING RESEARCH) INSTITUTE OF THE UKRAINIAN ACADEMY OF SCIENCES, IN 1955 MAY BE SUCCESSFULLY USED. THE E. O. PATON INSTITUTE HAS A CONSIDERABLE REPUTATION IN THE FIELD OF WELDING.
TECHNICAL DATA OF A-433 AND ITS PERFORMANCE ARE DESCRIBED. IT IS CONCLUDED THAT ITS USE FOR VERTICAL WELDING OF 3/4 IN. PLATES IS SATISFACTORY AND SAVES LABOR CONSIDERABLY. WELDING OF BOTH CARBON AND LOW-ALLOY STEELS WAS TRIED OUT. HOWEVER, A FORMER TYPE (A 411) OF A SIMILAR MACHINE RATED AS POOR.
WELDING, AUTOMATIC
AUTOMATIC, WELDING
WELDING EQUIPMENT
65021
DUBRAVIN,A.I.
AN OUTSTANDING POLAR EXPEDITION.=
SUDOSTROENIE, 31, SEP 1965, PP. 68-74

THIS SO A[illegible] ARTICL[illegible] TO T[illegible]
RAPE[illegible] HIST[illegible] OF [illegible] TAJ
MYR AND [illegible] FOR [illegible].
FOR IC[illegible] [illegible], [illegible] [illegible], [illegible]
[illegible] [illegible] [illegible].
DIS[illegible] [illegible] SINCE 1961 IS DESC[illegible]
A[illegible] ATTEMPT BY [illegible] TO [illegible]
R[illegible] CONTAINS THE HISTORY OF TWO ICE BREAKERS
[illegible]. TAJMYR WAS DESTROYED IN 1918 WH
[illegible] TAJMYR WAS OPERATED UNTIL 1954.
ICE BREAKERS, HISTORY
HISTORY, ICE BREAKERS
ARCTIC RESEARCH
65020
ZAGUBA,A.
THE ARCTIC ICE-BREAKING FLEET.=
VORKOJ FLOT, 17, DEC 1957. P. 1
THIS IS A VERY BRIEF AND GENERAL ARTICLE ON TH
E RUSSIAN ICEBREAKING FLEET. IT STARTS WITH E
RMAK AND KRASIN ICEBREAKERS AND CLOSES WITH PR
EDICTIONS FOR THE MOSKVA AND LENIN CLASSES. T
HE ARTICLE MENTIONS SOME ICEBREAKERS, BUT THE
ACCOUNT IS VERY BRIEF AND INCOMPLETE.
RUSSIAN ICEBREAKERS
ICEBREAKERS, HISTORY
HISTORY, ICEBREAKERS
ICEBREAKERS, RUSSIAN
65021
ANONYMOUS
THE NUCLEAR ICEBREAKER LENIN.=
VORKOJ FLOT, 18, NOV 1958, PP. 4-5
THIS IS A SHORT AND VERY BRIEF DESCRIPTION OF
THE LENIN ICEBREAKER. IT CONTAINS SOME TECHNI
CAL DATA AND MANY GLORIFYING COMMENTS.
LENIN ICEBREAKER
ICEBREAKER LENIN
65024
KUCHIEV,JU.
FIVE NAVIGATIONS OF THE NUCLEAR ICEBREAKER L
ENIN.=
VORKOJ FLOT, 25, FEB 1965, PP. 2-4
THIS IS A RATHER GLORIFYING ACCOUNT OF THE REC
ENT HISTORY OF THE ICEBREAKER SINCE JUNE, 1960
. MAIN SERVICE TASKS ARE LISTED, AND NAMES AN
D PHOTOGRAPHS OF RANKING CREW MEMBERS ARE INCL
UDED. TRANSLATION OPTIONAL.
ICEBREAKER LENIN
LENIN ICEBREAKER
ICEBREAKERS, OPERATION
OPERATION, ICEBREAKERS
65025
SIMONENKO,V.
FAMOUS CAPTAIN OF THE ICEBREAKING FLEET.=
VORKOJ FLOT, 25, OCT 1965
THIS IS AN HISTORICAL ACCOUNT OF ACTIVITIES OF
V. I. VORONIN. HE BECAME KNOWN IN 1928 AS A
CAPTAIN OF A STEAM ICEBREAKER G. SEDOV WHICH W
AS ENGAGED IN ARCTIC EXPEDITIONS. IN 1932 HE
COMMANDED THE ICEBREAKER A. SIBIRJAKOV AND SUC
CEEDED, FOR THE FIRST TIME, TO O[illegible]COME THE [illegible]

65021 501
65021 502
65021 503
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65021 505
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65021 507
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65021 509
65021 510
65021 701
65021 702
65021 703
65022 010
65022 101
65022 201
65022 251
65022 501
65022 502
65022 503
65022 504
65022 505
65022 506
65022 701
65022 702
65022 703
65022 704
65023 010
65023 101
65023 201
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65024 502
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65024 702
65024 703
65024 704
65025 010
65025 101
65025 201
65025 251
65025 501
65025 502
65025 503
65025 504
65025 505
65025 506

[illegible] A.M.
ICEBREAKERS, [illegible]
HISTORY, ICEBREAKERS
65026
ZYLEV,P.
THE FIRST ICEBREAKER.=
MORSKOJ FLOT, 24, NOV 1964, PP. 34-35
THIS IS AN HISTORICAL ACCOUNT MISSING THE 200TH ANNIVERSARY OF CONSTRUCTION OF THE FIRST ICEBREAKER PAJLOT. IT WAS ACTUALLY AN ICE-STRENGTHENED STEAMER, CONSTRUCTED BY PRUTEN (26 M LONG, DRAUGHT 2.5 M, 85 HP). THE DEVELOPMENT IS FOLLOWED UP TO ERMAK (1898) AND IS FINISHED BY MENTIONING LENIN.
ICEBREAKER PAJLOT
PAJLOT ICEBREAKER
ICEBREAKERS, HISTORY
HISTORY, ICEBREAKERS
65027
ANONYMOUS
HARBOR ICEBREAKER DOBRYNJA NIKITICH.=
SUDOSTROENIE, 31, SEP 1965, 2 PP.
THIS IS RATHER AN ADVERTISEMENT BUT IT GIVES THE FOLLOWING TECHNICAL DATA OF THE ICEBREAKER MAX. LENGTH 67.7 M, LENGTH AT WATERLINE 62.5 M, BREADTH MAXIMUM 18.1 M, AT WATERLINE 17.5 M, DRAUGHT 5.5 M, DEPTH 8.3 M, WATER DISPLACEMENT 2700 TONS, SPEED 14 KNOTS. IT MAY BE SEEN THAT THIS DATA IS IDENTICAL WITH THOSE GIVEN IN REFERENCES 55014, 75015 AND 55080, RESPECTIVELY. THERE THE ICEBREAKER WAS NOT IDENTIFIED (55014, 75015) OR DESCRIBED AS LEDOKOL CLASS. INDEED, THIS DESIGNATION APPEARS ON ONE OF THE PHOTOGRAPHS WHICH SHOWS AN ICEBREAKER OF THE SAME CLASS AS THE DOBRYNJA NIKITICH.
LEDOKOL CLASS
ICEBREAKER DOBRYNJA NIKITICH
DOBRYNJA NIKITICH ICEBREAKER
ICEBREAKERS, DESIGN
DESIGN, ICEBREAKERS
ICEBREAKERS, CONSTRUCTION
CONSTRUCTION, ICEBREAKERS
HARBOR, ICEBREAKERS
ICE-BREAKERS, HARBOR
RUSSIAN ICEBREAKERS
65028
MELESHKO,V.
ICEBREAKING OPERATIONS IN THE GULF OF FINLAND.=
MORSKOJ FLOT, 23, FEB 1963, PP. 31-33
THIS IS A SHORT BUT RATHER DETAILED ANALYSIS OF THE TITLE TOPIC DURING WINTERS 1960-1961 AND 1961-1962. ICEBREAKING PERFORMANCE OF ICEBREAKERS LENINGRAD, KAPITAN MORONIN AND SIBIRJAKOV IS EVALUATED. IT IS SHOWN THAT THE WORKING PERIODS OF THOSE ICEBREAKERS HAD AMOUNTED TO 82 [illegible] PER CENT OF THE TOTAL OPERATION TIME. AVERAGE SPEEDS OF CARAVANS FOLLOWING THOSE ICEBREAKERS ARE ALSO LISTED AS A FUNCTION OF THE

[illegible]	65028	510
[illegible]	65028	511
[illegible]	65028	512
[illegible]	65028	513
[illegible]	65028	514
C DISCUSSION. TRANSLATION OPTIONAL.	65028	515
ICEBREAKERS, OPTIMIZATION	65028	701
OPERATION, ICEBREAKERS	65028	702
ICEBREAKER LENINGRAD	65028	703
LENINGRAD ICEBREAKER	65028	704
ICEBREAKER SIBIRJAKOV	65028	705
SIBIRJAKOV ICEBREAKER	65028	706
65029	65029	010
DOMASHENKO,JU.	65029	101
FROM THE EXPERIENCE OF EXPLOITATION OF THE I	65029	201
CEBREAKER DOBRYNJA NIKITICH.=	65029	202
MORSKOJ FLOT, 24, FEB 1964. PP. 24-25	65029	251
THE AUTHOR IS CAPTAIN OF THE TITLE ICEBREAKER	65029	501
WHICH HAS BEEN IN SERVICE SINCE 1960. THIS IC	65029	502
EBREAKER HAS BEEN USED SUCCESSFULLY IN REGULAR	65029	503
SEA SERVICE, ALTHOUGH IT HAS BEEN CONSTRUCTED	65029	504
FOR HARBOR SERVICE. THE ARTICLE CONTAINS SOM	65029	505
E TECHNICAL DATA WHICH APPEARS IN MORE DETAIL	65029	506
IN 65014, 75015, 13139 AND ALSO DESCRIBES OPER	65029	507
ATION EXPERIENCE. IT SEEMS THAT A MORE REALIS	65029	508
TIC ACCOUNT OF THE LATTER IS GIVEN IN 55056.	65029	509
TRANSLATION OPTIONAL.	65029	510
LENINGRAD CLASS	65029	701
ICEBREAKER DOBRYNJA NIKITICH	65029	702
DOBRYNJA NIKITICH ICEBREAKER	65029	703
ICEBREAKERS, OPERATION	65029	704
OPERATION, ICEBREAKERS	65029	705
65030	65030	010
KOCHEROV,P.N.	65030	101
TICHKOVETZ,I.V.	65030	102
FROM THE EXPERIENCE OF CONSTRUCTION OF ICEBR	65030	201
EAKING TUGS.=	65030	202
SUDOSTROENIE, 24, AUG 1958, PP. 54-56	65030	251
THIS IS A VERY DETAILED AND EXTENSIVE ARTICLE	65030	501
WHICH DESCRIBES CONSTRUCTION, FIELD TESTS AND	65030	502
PERFORMANCE CHARACTERISTICS AND SUBSEQUENT CHA	65030	503
NGES OF PROPELLER DESIGN IN POWER PLANT CHARAC	65030	504
TERISTICS, ETC., OF TWO IDENTICAL ICEBREAKING	65030	505
TUGS DON AND VOLGA. TECHNICAL DATA LENGTH 44	65030	506
.7 M, BREADTH 11.4 M, DEPTH 4.0 M, DISPLACEMEN	65030	507
T (WITH FUEL FOR 8 WEEKS) 657 TONS, DRAUGHT 2.	65030	508
4 M, 2 DIESEL-ELECTRIC UNITS GIVE 1300 HP. IC	65030	509
EBREAKING CAPACITY IN CONTINUOUS MOTION 0.4 M	65030	510
. TRANSLATION OPTIONAL.	65030	511
HARBOR ICEBREAKERS	65030	701
ICEBREAKERS, HARBOR	65030	702
HARBOR, TUGS	65030	703
TUGS, HARBOR	65030	704
TUG DON	65030	705
DON, TUG	65030	706
TUG VOLGA	65030	707
VOLGA TUG	65030	708
65031	65031	010
DEDJURIN,A.	65031	101
FOR AN ACTIVE METHOD OF ICEBREAKERS OPERATIO	65031	201

N (EXPERIENCE FROM THE ICEBREAKER MOSKVA).= 65031 202
MORSKOJ FLOT, 22, JAN 1965, PP. 35-36 65031 251
THIS IS A BRIEF ACCOUNT OF THE AUTHORS EXPERIE 65031 501
NCE ON VARIOUS ICEBREAKERS, MOST RECENTLY AS C 65031 502
APTAIN OF THE ICEBREAKER MOSKVA. IT DESCRIBES 65031 503
ICEBREAKING PERFORMANCE OF ICEBREAKERS OF THE 65031 504
7000-8000 HP CLASS AND REQUIREMENTS ON THE FO 65031 505
LLOWING SHIPS. THEN THERE IS A VERY BRIEF NOT 65031 506
E ON THE PERFORMANCE OF THE MOSKVA ICEBREAKER 65031 507
AND ON THE GREAT USEFULNESS OF ICE-STRENGTHENE 65031 508
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SUDOSTROENIE, 29, APR 1963, PP. 38-39
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SUDOSTROENIE, 25, OCT 1959, PP. 23-26
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SUDOSTROENIE, 25, JAN 1959, PP. 34-37
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SUDOSTROENIE, 28, APR 1958, PP. 72-7[illegible]
THIS IS A REVIEW OF [illegible] NUCLEAR [illegible] OF [illegible]
ICAN ARTICLE ON THE TITLE TO BE [illegible] FOR [illegible]
 REFERENCES, SEE A-PPLIED [illegible], V. 1961 [illegible]
COMPASS, AUGUST [illegible] SHIP [illegible] NUCLEAR [illegible]
SONS, THERE IS A RATHER INTERESTING ONE. IN A
 HYPOTHETICAL EXAMPLE OF OIL TRANSPORTATION BY A 60
 000 TONS TANKER FROM THE GULF OF PERSIA TO NE
W YORK, THE COST OF TRANSPORTATION IS 9.07 IN
CASE OF AN AMERICAN SHIP AND 5.33 IN CASE OF A
N AVERAGE SHIP OF ANOTHER WESTERN FLEET. THE
DIFFERENCE IS DUE MAINLY TO WAGES, INSURANCE A
ND AMORTIZATION. IT IS SHOWN THAT SHIPS WITH NUCLE
AR PROPULSION WOULD BE MORE EXPENSIVE, FROM 90
 TO 14.50 PER TON.
POWER PLANTS, NUCLEAR
NUCLEAR POWER PLANTS
POWER PLANTS, SELECTION
SELECTION, POWER PLANTS
75019
KLOCHKOV,S.A.
  SOME REMARKS ON NUCLEAR POWER PLANTS AND THE
IR USE ON SHIPS.=
SUDOSTROENIE, 23, APR 1957, PP. 54-60
THIS IS AN EXTENSIVE ARTICLE ON TYPES, TECHNIC
AL PROPERTIES, ARRANGEMENTS ETC. OF NUCLEAR RE
ACTORS AND ON THEIR SELECTION FOR USE ON SHIPS
. SCHEMES OF REACTORS AND ASSOCIATED MACHINES
 ARE GIVEN. DATA IS COMPILED MAINLY FROM WEST
ERN REFERENCES. HOWEVER, THERE ARE OBVIOUSLY
MANY MISTAKES IN THE ARTICLE. THOSE ARE SPECI
FIED ON THE NEXT REFERENCE (SUDOSTROENIE 28, O
CT 1957).
POWER PLANTS, NUCLEAR
NUCLEAR POWER PLANTS
POWER PLANTS, SELECTION
SELECTION, POWER PLANTS
75020
ALKINOVICH,A.V.
MENSHUTKIN,V.V.
BAEV,C.V.
POZDEEV,A.V.
MANASJAN,JU.G.
SHALIK,G.P.
  COMMENTS ON SOME REMARKS ON NUCLEAR POWER PL
ANTS AND THEIR USE ON SHIPS.=
SUDOSTROENIE, 28, OCT 1957
THIS IS A SHORT ARTICLE WHICH POINTS OUT SERIO
US MISTAKES IN THE TITLE PAPER BY S. A. KLOCHK
OV (SUDOSTROENIE 23, APR 1957, PP. 54-60).
POWER PLANTS, NUCLEAR
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POWER PLANTS, ICEBREAKERS
75023
MUSKHELISHVILI,K.
SOME INTERNATIONALLY-LEGAL ASPECTS OF EXPLOI
TATION OF NUCLEAR SHIPS.=
IN ARKOJ FLOT, 26, FEB 1958
THIS IS A DETAILED ARTICLE ON LEGAL RULES AND
AGREEMENTS WHICH APPLY TO NUCLEAR SHIPS. THE
AGREEMENTS INCLUDE TREATY OF PARIS (1856), LON
DON (1936), BRUSSELS (1962). RULES INCLUDED I
N THESE AGREEMENTS ARE DISCUSSED AT LENGTH AND
THEIR EFFECT ON USE OF MATERIALS IN ILLUSTRATIO
N. TRANSLATION RECOMMENDED.
LAW
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NUCLEAR PROPULSION
75024
KHAURIN,A.
DASGUPTA,V.
WORK OF THE PROPELLER POWER PLANT OF THE ICE
BREAKER DURING BREAKING OF ICE BY PROPELLER ALA
ONE.=
MORSKOJ FLOT, 26, AUG 1958, PP. 22-24
THIS IS A DETAILED THEORETICAL ANALYSIS OF THE
TITLE SUBJECT. THE THEORY IS BASED ON FOUNDED
G EXPERIMENTAL FIELD MEASUREMENTS PERFORMED ON
ICE-BREAKERS. A SIMPLIFIED METHOD IS USED TO DESCRI
BE THE FORCES GENERATED DURING INTERACTION OF THE
BLADE WITH A FLOE. CALCULATIONS TABLES FOLLOW
AND STATE THE RESULTING PROFIT AND ITS TOTAL VA
RIATION. TABLES, THE POWER PLANT MUST BE DESIGNE
D TO PROVIDE SUFFICIENT POWER FOR THE MAXIMUM
OF REQUIRED OUTPUT WITH THE MINIMUM OF WEIGHT
EDGING OF BLADES IN ICE. OPTIMUM RECOM

PROP ELL
ALL
75029
DEDJURIN,M.
PROTECTION AGAINST
VIGATION IN ICE.=
MORSKOJ FLOT, 15, JUL
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TES THAT
CABLE
ED TO
N. PROPER MANEUVERS
D MINIMIZE THE
THIS ARTICLE IS JUST
TH WITH REGARD TO EXPERIENCE OBTAINED WITH
ICEBREAKER KAPITAN BELUSOV.
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ICEBREAKERS, PROPELLERS
PROPELLERS, ICEBREAKERS
75026
OVSJANNIKOV,V.
TESTS OF MAIN DIESELS OF THE ICEBREAKER MOSK
VA.=
MORSKOJ FLOT, 21, JUL 1961, PP. 26-27
THIS ARTICLE IS RATHER SIMILAR TO THAT DESCRIB
ED IN 75030. SOME DRAWINGS APPEAR AGAIN. BUT
THIS ONE IS MUCH MORE DETAILED AND CONTAINS MO
RE DATA. THE DIESEL-ELECTRIC POWER PLANT IS D
ESCRIBED IN DETAIL AND MUCH TECHNICAL DATA IS
INCLUDED. THEN ITS PERFORMANCE DURING STANDAR
D TESTS IS DESCRIBED AND EVALUATED. DEFECTS D
ISCOVERED AFTER TEST NAVIGATION ARE MENTIONED.
TRANSLATION RECOMMENDED.
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ICEBREAKER MOSKVA
POWER PLANTS, PERFORMANCE TESTS
PERFORMANCE TESTS, POWER PLANTS
ICE-BREAKERS, POWER PLANTS
POWER PLANTS, ICE-BREAKERS
75027
ICNATIN,N.F.
STRENGTH CALCULATION
ICEBREAKERS AND SHIPS NAVIGATING IN ICE.=
SUDOSTROENIE, 30, JUL
THIS IS A
IT USES USUAL
ON THE BLADE AND DERIVES FORMULAE FOR DESIG
N. THE RESULTS ARE APPLIED TO 8 SHIPS ALREADY
IN OPERATION. TRANSLATION RECOMMENDED.
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PROPELLERS, ICE-BREAKERS
75028
KRAJKIN,A.F.

MATHEMATICAL MODELING OF THE INTERACTION OF A PROPELLER WITH ICE.=
SUDOSTROENIE, 30, MAR 1964, PP. 32-36
THIS IS A DETAILED AND ADVANCED STUDY ON MODELING AND COMPUTER ANALYSIS OF AN ICEBREAKERS POWER PLANT PERFORMANCE HISTORY DURING INTERACTION OF THE PROPELLER WITH ICE. IT IS CONCLUDED THAT FAST ACTING EXCITATION EQUIPMENT SHOULD BE USED FOR ICEBREAKERS POWER PLANTS, WHICH WOULD OPERATE ONLY DURING THE INTERACTION PERIOD. SUCH EQUIPMENT MINIMIZES CHANCES OF WEDGING OF BLADES IN ICE AND GENERALLY REDUCES THE PROBABILITY OF DAMAGE. THE INFLUENCE OF VARIOUS PARAMETERS OF THE POWER PLANT ON THE WEDGING REGIME IS ANALYZED AND FULLY EXPLAINED. A PROGRAMMING PROCEDURE IS DESCRIBED, WHICH MAY BE USED TO CALCULATE OPTIMAL PARAMETERS OF A POWER PLANT FROM A GIVEN TIME DISTRIBUTION OF THE ICE MOMENT. SUCH PROCEDURE SHOULD ENSURE BEST PERFORMANCE OF THE POWER PLANT AND ITS SMOOTH RESPONSE TO TRANSIENT EFFECTS. TRANSLATION RECOMMENDED.
COMPUTERS USE
ICEBREAKERS, POWER PLANTS
POWER PLANTS, ICEBREAKERS
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POWER EQUIPMENT, ICEBREAKERS
75029
POZDEEV,A.V.
CONSTRUCTION OF NUCLEAR POWER PLANTS FOR MILITARY AND COMMERCIAL VESSELS IN CAPITALIST COUNTRIES.=
SUDOSTROENIE, 24, JAN 1958, PP. 58-66
THIS IS AN EXTENSIVE REVIEW BASED ON WESTERN (UNLISTED) REFERENCES. IT SUMMARIZES WORK ON THE TITLE SUBJECT WHICH HAD BEEN DONE OR CONSIDERED AT THAT TIME IN THE USA (ABOVE ALL), ENGLAND, NORWAY, HOLLAND, FRANCE, SWITZERLAND, AND IN WESTERN GERMANY.
NUCLEAR POWER PLANTS
POWER PLANTS, NUCLEAR
75030
OBSJANNIKOV,M.K.
SOME RESULTS OF TESTING OF MAIN ENGINES OF ICEBREAKER MOSKVA.=
SUDOSTROENIE, 28, JUN 1962, PP. 45-46
THIS IS A SHORT DESCRIPTION OF PERFORMANCE TEST RESULTS OF THE MOSKVA ICEBREAKER. A VARIETY OF DATA IS GIVEN. PLOTS OF OUTPUT CHANGES AND FUEL CONSUMPTION OF MAIN ENGINES VS. SPEED OF THE ICEBREAKER ARE SHOWN. TRANSLATION RECOMMENDED.
MOSKVA ICEBREAKER
ICEBREAKER MOSKVA
POWER PLANTS, PERFORMANCE TESTS
PERFORMANCE TESTS, POWER PLANTS
ICEBREAKERS, POWER PLANTS
POWER PLANTS, ICEBREAKERS

75031
BORASHADSKI,V.L.
ELECTRIC DRIVE FOR THE SCREW OF THE ATOMIC I CEBREAKER LENIN.
ELEKTRICHESTVO 10, 1959, P. 50-56
THIS IS A DETAILED DESCRIPTION OF THE ELECTRIC POWER SYSTEM FOR THE ICEBREAKER PROPELLERS. IT INCLUDES MAIN TECHNICAL DATA ON THE ICEBREAKER, ITS MAIN CURRENT CIRCUIT DIAGRAM AND DETAILED ACCOUNT OF THE CONTROL SCHEME, INCLUDING ITS STABILIZATION, EXCITATION AND OTHER UNITS. SCHEMATIC DRAWINGS AND GRAPHS ARE ATTACHED. TRANSLATION AVAILABLE.
ICEBREAKER LENIN
LENIN ICEBREAKER
ICEBREAKERS, PROPULSION SYSTEMS
PROPULSION SYSTEMS, ICEBREAKERS
ICEBREAKERS, POWER EQUIPMENT
POWER EQUIPMENT, ICEBREAKERS
ICEBREAKERS, ENGINES
ENGINES, ICEBREAKERS
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KAMYSHENKO,I.D.

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75031 508
75031 701
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75031 703
75031 704
75031 705
75031 706
75031 707
75031 708
75032 010
75032 101
75032 102

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[illegible]
AN APPROXIMATE [illegible]
ASIENT FLOWS[illegible]
TS.=
TRUDY C.N.I.I. [illegible]
1[illegible]
THIS IS AN INTERNAL [illegible]
C. IN PARTICULAR, [illegible]
BE ANALYZED. [illegible]
STRUCTURES OF THE [illegible]
R SPEEDS [illegible]
CS OF THE PROPELLER [illegible]
APPROXIMATIONS OF DESIGN [illegible]
ARE EVALUATED. [illegible]
UN.
THE METHOD IS WELL KNOWN FOR USE IN CONNECTION WITH ICEBREAKER PROPELLERS. ALSO THIS [illegible] IN PART TO THAT TOPIC.
SHIPS, POWER PLANTS
POWER PLANTS, SHIPS
INTERNAL COMBUSTION ENGINE POWER PLANTS
POWER PLANTS, ICEBREAKERS
SHIPS, ENGINES
ENGINES, SHIPS
75042
GRECHIN,O.A.
AN EXPERIMENTAL INVESTIGATION OF HYDRODYNAMICAL CHARACTERISTICS OF SCREW PROFILES.=
TRUDY C.N.I.I. MORSKOGO FLOTA 7, 1956, P. 62-95
THIS IS A DESCRIPTION OF EXPERIMENTS WHICH WERE PERFORMED IN 1952-1953 AT THE LENINGRAD STATE UNIVERSITY. THE PURPOSE OF THIS WORK IS TO OBTAIN CHARACTERISTICS OF A SPECIAL SERIES OF PROPELLER PROFILES IN ORDER TO SUPPLEMENT THE SERIES WHICH WERE PREVIOUSLY RECOMMENDED. [illegible] A MORE ACCURATE BASIS FOR CONSTRUCTION OF SPECIAL LOW-CAVITATION PROPELLERS. THIS IS ESPECIALLY NEEDED FOR CALCULATION OF OPTIMAL SIZES AND SHAPES OF PROPELLER BLADES.
PROPELLERS
PROPELLERS, BLADES
BLADES, PROPELLERS
SHIPS, PROPELLERS
PROPELLERS, SHIPS
75043
PUMJANCEV,V.S.
APPLICATION OF THE METHOD OF THEORETICAL MODELING FOR INVESTIGATION OF PROCESSES IN AN A.C. PROPELLER POWER PLANT.=
TRUDY C.N.I.I. MORSKOGO FLOTA 46, 1962, P. 20-25
[illegible]

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THE DESIGN OF PROPELLERS IN NOZZLES.=	75047	201
SCHIFF UND HAFEN, 11, FEB 1959, P. 83-92	75047	251
THIS IS A VERY DETAILED PRACTICAL ARTICLE ON T	75047	501
HE TITLE TOPIC. IT EXTENDS PREVIOUS WORK OF T	75047	502
HE FIRST AUTHOR ALONG EXPERIMENTAL LINES AND G	75047	503
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E OF PROPELLERS IN NOZZLES. IN PARTICULAR A K	75047	505
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PROPULSION OF SHIPS BY STEAM TURBINES.=	75048	201
SCHIFF UND HAFEN, AUG 1958, P. 639-646	75048	251
THIS IS A GENERAL ARTICLE ON THE TITLE TOPIC.	75048	501
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L AND TORSIONAL VIBRATION OF SHIP PROPELLER SH	75049	202
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THIS IS A DETAILED THEORETICAL ARTICLE ON VIBR	75049	501
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SCHIFF UND HAFEN, JUL 1959, P. 599-606	75050	251
THIS IS A THEORETICAL ARTICLE ON DESIGN ANALYS	75050	501
IS OF A PROPELLER FLOW UNDER FULLY DEVELOPED C	75050	502
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SCHIFF UND HAFEN, DEC 1959, P. 1112-1116	75051	251
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ORK IS COMPARED WITH EXPERIMENTS IN STUDIES OF	75051	502
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SCHIFF UND HAFEN, 10, FEB 1958, P. 123-126	75052	251
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Appendix V

DOCUMENTATION

This Appendix contains bibliographical data, annotated comments and key words of all references which were included in this Library Search. References are listed in numerical order within each subject category, the latter are described in Appendix II (p.7).

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13. ABSTRACT

Library search for literature in the field of icebreaker design and construction was made. The purpose of this search was to collect, review and make documentation of Russian and German literature, published between 1956 and 1966, which was pertinent to the main subject.

Special reference was given to structural design, propulsion and to materials and processes used in construction as well as to physical properties of ice, to icebreaking theory and methods and to problems related to the interaction between the icebreaker and ice. Other pertinent areas, including fracture, fatigue and corrosion resistance were also included.

This report describes the main features of the work, its extent, sources and results. It contains technical information on the documentation and on copyright clearance. Bibliographical data, abstracts and key words of all references included in this search are listed in numerical order within each of ten subject categories.

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