ALMAZOV, V.A.; SHCHUKIN, V.B.; ROMM, R.S.

Detection of the leucopoietic activity of blood plasma in diseases of the blood system. Lab. delo no.3:160-165 '65. (MIRA 18:3)

1. Kafedra fakul'tetskoy terapii (zaveduyushchiy - prof. T.S. Istmanova) I Leningradskogo meditsinskogo instituta im. I.P. Pavlova.

SHCHUKIN, V.F., inzhener.

[redacted]

Investigating the moment of force acting on units of a continuous steel casting installation. Stal' 17 no.4:320-322 Ap '57. (MLRA 10:5)

1. Novo-Tul'skiy metallurgicheskiy zavod.
(Steel--Electrometallurgy)
(Mechanics)

SHCHUKIN, V. F., Candidate Tech Sci (diss) -- "Experimental investigation of the power effects in the continuous casting of steel". Moscow, 1959. 14 pp (Main Admin of Sci Res and Design Organizations of the Gosplan USSR, Central Sci Res Inst of Tech and Machinebuilding TsNIITMash), 150 copies (KL, No 23, 1959, 169)

APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001548920014-7"

SHCHUKIN, V.I.

Organization of the operation and repair of building machinery. Energ.stroi. no.5:197-201. '58. (MIRA 12:5)

1. Glavnyy mekhanik Kuybyshevgidrostroya.
(Volga Hydroelectric Power Station--Building machinery)

KAGAN, V.N.; SHCHUKIN, V.I.; TSEGEL'SKIY, V.L., inzh., nauchn. red.; PATENOVSKAYA, M.I., red.izd-va; MOCHALINA, Z.S., tekhn. red.

[Gas welding and cutting in construction] Gazovaia svarka i rezka v stroitel'stve. Moskva, Gosstroiizdat, 1963. 113 p. (MIRA 16:11)

(Gas welding and cutting)

PHASE I TREASURE ISLAND BIBLIOGRAPHICAL REPORT AID 451 - I

BOOK

Call No.: AF640322

Author: SHCHUKIN, V. K., Kand. of Tech. Sci.

Full Title: ASSAULT ON THE SKY (HOW TO STUDY THE ATMOSPHERE)

Transliterated Title: Shturm neba (Kak izuchayetsya atmosfera)

Publishing Data

Originating Agency: None

Publishing House: State Publishing House of Technical and Theoretical Literature

Date: 1953 No. pp.: 48 No. of copies: 150,000

Editorial Staff: None

Text Data

Coverage: This monograph of the series "Scientific-Popular Library" describes atmospheric phenomena and their investigation in an extremely popular form. It is a propaganda book asserting that all discoveries in meteorology and all achievements in aviation are due to Russian scientists. The booklet contains brief descriptions and illustrations of various meteorological instruments. It mentions ascensions of Soviet flyers on aerostats and stratosphere balloons, with names, dates and attained heights (p. 21-24). It describes briefly sonde balloons, the radiosonde balloon of Prof. P. A. Molchanov, rockets (pp. 29-37, 48).

TABLE OF CONTENTS

S.CH.RIN, V.A.; .OLG.ESKIY, A.V.

"Rabochiye protsessy v zhidkostnoreaktivnykh dvigatelyakh"

Oborongiz 1953

BOGARSKIY, Andrey Vladimirovich; SHCHUKIN, V.K.

[Working processes in liquid-fuel jet engines]Rabochie protsessy v zhidkostno-reaktivnykh dvigateliakh. Moskva, Gos.izd-vo obor. promyshl., 1953. 424 p. (MIRA 15:8)
(Jet propulsion)

AID P - 4363

Subject : USSR/Heat Engineering

Card 1/1 Pub. 110-a - 8/19

Authors : Shchukin, V. K., Kand. Tech. Sci. Kazan Aviation Institute

Title : The relation between the dimensions of a one-stage flow-compressor and its efficiency.

Periodical : Teploenergetika, 4, 27-35, Ap 1956

Abstract : Research on this relationship was made to determine the efficiency and uniformity of exit air flow. A comparison is made between flow-compressors with internal and external air intake. 13 diagrams.

Institution : None

Submitted : No date

SOV/147 -58-1-14/22

AUTHOR: Shchukin, V.K.

TITLE: ~~On the Compression~~ Ratio of a Jet Engine for Minimum Transverse Dimensions (Stepen' szhatiya kompressora, obespechivayushchaya minimal'nyye poperechnyye gabarity TRD)

PERIODICAL: Izvestiya Vysshikh Uchebnykh Zavedeniy, Aviatsionnaya Tekhnika, 1958, Nr 1, pp 113-125 (USSR).

ABSTRACT: An engine with a two-stage compressor and no re-heat is discussed. The transverse dimensions are conveniently evaluated in terms of the "frontal thrust". The intake, compressor, combustion chamber, turbine and exhaust pipe are considered separately. In the first part of the article, expressions are given for the "frontal thrust" in the various parts of the engine. In the second part, the compression ratio corresponding to the maximum "frontal thrust" is discussed. Finally, the optimum compression ratio and the maximum "frontal thrust" are plotted against an undefined parameter M_h for various local velocities and temperatures. It appears that an increase in the local velocity causes an increase in the optimum compression ratio and a reduction in the maximum "frontal thrust". At sonic speeds, when the transverse

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On the Compression Ratio of a Jet Engine for Minimum Transverse Dimensions

dimensions are determined by the compressor, the local velocity has little effect on the maximum "frontal thrust" and at large supersonic speeds a reduction in the local velocity leads to an increase in the capacity of the turbine, which in these conditions is largely the limiting criterion. The optimum compression ratio increases with $\bar{n}$ where $\bar{n}$ is the ratio of the r.p.m. in the second stage to the r.p.m. in the first stage of the compressor. There are 9 figures and 2 tables

ASSOCIATION: Kafedra teplovykh dvigateley, Kazanskiy aviatsionnyy institut (Kazan' Aviation Institute, Chair of Heat Engines)

SUBMITTED: October 4, 1957

Card 2/2

1. Jet engines--Design 2. Combustion chambers--Analysis 3. Compressors--Applications

SOV/147-58-3-13/18

AUTHOR: Shchukin, V.K.

TITLE: Boosting of Turbo-Jet Engines in High Speed Flight by Injection of a Liquid Ahead of the Compressor (Vozmozhnosti forsirovaniya TRD vpryskom zhidkosti pered kompressorom pri bol'shikh skorostyakh poleta)

PERIODICAL: Izvestiya Vysshikh Uchebnykh Zavedeniy, Aviatsionnaya Tekhnika, 1958, Nr 3, pp 105-111 (USSR)

ABSTRACT: Augmentation of the thrust of turbojet engines can be obtained without a change of the turbine speed by injecting a liquid in front of the turbine compressor at a station between X and 1 (Fig.1). The liquid evaporates and this increases the pressure and decreases the temperature at the given station. As a result of these changes the mass flow of the air through the engine is increased as well as the pressure difference through the nozzle giving eventually an increased thrust. Relating the expressions for the thrust of a boosted engine and for the engine without boosting when working at its maximum rating we get Eq.1, where w - velocity of flow; p^* and T^* - stagnation pressure and temperature;

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m - coefficient in the mass flow equation;
g_r - quantity of the injected liquid per kg of air;
$\bar{p} = P_\phi/Ph$ - rate of boosting of the engine;
λ - reduced velocity;
q(λ) - gas dynamics function;
β - coefficient expressing the mass flow increase as a result of addition of fuel and liquid.
The indices denote the respective stations in the engine as shown in Fig.1; the index o denotes the boosted range of work of the engine. Relating the specific liquid consumption during the boosted cycle to the specific fuel consumption of the unboosted engine at the maximum output (conditions of flight being the same in both cases) we get Eq.2, where $\bar{\bar{c}}_r = c_r/c_{ph}$ and c_r is the specific consumption of the liquid per kg of thrust of the boosted engine.
C_{ph} - is specific fuel consumption without boosting;
g_T - quantity of fuel per kg of air used without boosting the engine; that balance between x and 1 gives

Card 2/6 Eq.3, where t - temperature in °C; c_{pB} - specific heat

Boosting of Turbo-Jet Engines in High Speed Flight by Injection of a Liquid Ahead of the Compressor

of air (per unit weight); r - latent heat of vaporization of the liquid; $t_{ж}$ and $c_{ж}$ - temperature and specific heat of the liquid; $c_{pп}$ - specific heat of the vapour of the liquid. Relation between specific consumption of fuel in boosted and unboosted engine is given by Eq.4, while balance of heat for the combustion chamber yields Eq.5, where S - is the weight content of the combustive component in the injected liquid; H_u and $H_{u\phi}$ - calorific value of the fuel and the combustive component of the liquid; ξ and ξ_o - coefficient of the completeness of combustion of fuel and liquid. The economy of the engine work with boosting is given by the total specific consumption (Eq.6). The amount of liquid which can be injected depends on the design of the compressor and the following two factors: 1) saturation limit of the given liquid vapour in the air; 2) limiting speed of air flow at the entrance to compressor which must remain subsonic. If the liquid is a mixture of water and alcohol Eq.7 and 12 give the limiting amount of

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mixture which can be injected. Here d_{PRED_0} and d_{PRED} - water vapour content in one kg of the air intake in the state of saturation; g_B and g_{CP} - weight content of water and alcohol per kg of air intake; γ_s and γ_{SUK} - specific weight of dry saturated vapour and dry air; k - adiabatic index; φ_o - relative humidity of the atmospheric air (air intake). The temperature ratio of Eq.7 may be taken as given in Eq.13 and pressure ratio as given by Eq.14. At the start and at low speeds the amount of admissible liquid injection is small but it grows with velocity of flight and height as shown in Fig.2. It has been assumed that the engine is always running at its maximum speed. Augmentation of thrust and changes in economy due to boosting for a given engine depends on the amount of injected liquid, main parameters of the design and the conditions of flight. This shown in Fig.3 (the speed is given by M_p = 1.7; the height is 11 km and the compression ratio is Π_{ko} - 11,8). With compression ratio greater than 8 it has been assumed that the engine is of two-cascade type;

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and the regulation of the engine to obtain the maximum thrust was assumed to be achieved by maintaining constant the revolutions of the first cascade of the compressor and by keeping constant the temperature at the inlet to the turbine. Water is taken as the injected liquid. Finally it was assumed that the coefficient of fulness of combustion is the same in the boosted and unboosted flight. Fig.4 shows that the rate of boosting of the engine varies only slightly with the characteristic parameters of the engine (i.e. compression ratio Π^*_{ko} and the temperature of gases before the turbine T_3^*) but with larger compression ratio it grows faster. Fig.5 shows the variation of the rate of boosting with the speed of flight. It can be seen that the extra thrust increases with speed and height but at the same time the economy deteriorates; the overall fuel and liquid consumption increases. It must be mentioned that when boosting an engine by means of injection of a liquid ahead of the compressor it may prove necessary to increase the diameter of the air intakes in order to admit a

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larger air intake due to injected liquid (this applies mainly when boosting takes place in conditions of maximum air flow). This will lead to increase in the thrust needed per unit of frontal area as shown in Eq.15, where P_{Λ}^{B} - thrust developed per unit of frontal area based on the air intake; G_{B} - weight rate of flow of the air through the engine; $\bar{P}_y = P_{\bar{y}\phi}/P_y$ where P_y is the specific thrust. There are 5 figures.

ASSOCIATION: Kazanskiy Aviatsionnyy Institut, Kafedra Teplovykh Dvigateley (Kazan' Institute of Aeronautics, Chair of Heat Engines)

SUBMITTED: 21st November 1957.

AUTHOR: Shchukin, V. K.

SOV/147-58-4-11/15

TITLE: Boosting Turbojet Engines by Injection of Compressed Air Before the Compressor (Forsirovaniye TRD struyey szhatiyem vozdukha pered kompressorom)

PERIODICAL: Izvestiya Vysshikh Uchebnykh Zavedeniy, Aviatsionnaya tekhnika, 1958, Nr 4, pp 92-100 (USSR)

ABSTRACT: Fig 1 shows diagrammatically the system. Compressed air is supplied from a bottle through nozzles (ducts) and is introduced into the engine upstream of the compressor. This results in a higher overall compression ratio of the system, a higher gas flow and finally an increased thrust. The compressed air injectors analysed in this article consisted of four active nozzles and the relative length of the mixing chamber was $\bar{\ell} = 2$ (with 12 nozzles the same characteristics were obtained when $\bar{\ell} = 1$, and with $\bar{\ell} = 0$ they are slightly inferior). The increase of the thrust due to boosting is limited by the capacity of the air intake of the engine. It can be expressed thus:

$$\bar{G}_{supply} = \frac{n+1}{n} \frac{\sigma_a}{\sigma_B} \frac{\alpha \bar{p}_a^{*} (n\sqrt{\theta})_{np}}{q(\lambda_{B_0})} \quad (1)$$

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This equation relates the mass flow of the air through the injectors at the limit of their range of operation with that through the air intake, where:

G_{1np} - limiting air flow through the injectors,

G_{B_0} - air flow through the un-boosted engine,

σ_a and σ_B - pressure coefficients of the sub-critical parts of the active nozzles and the inlet part of the passive air duct, respectively,

$\bar{p}_a^*$ - the ratio of the full active and passive air pressures,

θ - the ratio of the passive and active air stagnation temperatures,

λ_{B_c} - reduced velocity of the air at the intake of the un-boosted engine,

q - gas dynamics function,

n - coefficient of ejection.

Fig 2 shows dependence of the extra capacity of the air intake on the parameters of the injectors at $\theta = 1$

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during starting conditions. The relation

$$(n\sqrt{\theta})_{np} = f(\alpha, \bar{p}_a^*)$$

was estimated from experimental data, and it was assumed that $\sigma_a = \sigma_B$. Eq (2):

$$\bar{P} = \bar{\pi}^* \bar{\sigma}_3 \; \bar{\pi}^*_{MK}$$

gives the degree of boosting of the engine during starting conditions (T_3^* = const and critical pressure gradient in the turbine), where:

P - thrust of the boosted engine,
P_o - thrust of the un-boosted engine,
$\bar{\pi}^*$ - increase in overall compression ratio due to injectors,
π^*_{MK} and $\pi^*_{MK_o}$ - compression ratios across the compressor of the boosted and unboosted engine respectively.

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As proved by the author in his publication: "Simultaneous operation of a mechanical compressor and a jet compressor (injector)" (Kazan' Institute of Aeronautical Eng.; Publication XL, 1958), relations (3) and (4) relate the performance of the two components, where:

$\pi^*_{ИК}$ - compression ratio of the injector,

$\sigma_Д$ - pressure coefficient of the diffuser without injector,

β - angle of diffusion of the passage C-1,

p^* and T^* - stagnation pressure and temperature of the flow,

F - cross-sectional area of the duct.

Fig 3 (bottom graphs) shows the characteristics of the injector and the upper graphs represent some intermediate stages of the relation (4). In the analysis of the compression ratio through the compressor, the adiabatic process was assumed. The economy of the engine was assessed by relating the specific fuel consumption with the specific air consumption. Fig 4 shows possibilities

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of boosting the engine by the supply of compressed air from a bottle at $\Theta = 1$ and $\bar{p}_a^* = 3$. It is seen (top graphs) that the thrust increases with increased active air and with increased initial λ_{B_c}. Specific fuel consumption of the boosted engine decreases in conformity with increased specific thrust (middle graphs). Specific air consumption increases with $\bar{G}_a$ and with a decrease of λ_{B_c} (bottom graphs). Fig 5 shows the relation $\bar{P} = f(\bar{C}_B)$ for various values of $\bar{p}_a^*$. As the thrust increases the economy of the boosted engine deteriorates. Although an increase of pressure gradient in the active nozzle is advantageous as far as the specific consumption of the air is concerned, the change in this gradient affects also $\bar{p}_a^*$ and produces a change of the design point conditions for the injector. This affects only a little the economy of the engine at $\bar{p}_a^* = 3$ or $\bar{p}_a^* = 4$, but for small increases of the thrust ($\bar{P} < 1.22$) the gradient

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$\bar{p}_a^* = 3$ seems to give a greater economy. Eqs (7) and (8) give the relations determining when the injector may become chocked. Here suffix "0" denotes parameters of the un-boosted engine. Fig 6 gives the corresponding graphs with $\bar{p}_a^* = 3$ and $\alpha = 0.1$. Up to the chocking of the injector nozzle the specific thrust of the boosted engine increases with θ and the specific consumption of air decreases; but once chocking develops the thrust remains stationary and the air consumption increases. The overall compression ratio (i.e. due to the compressor and the injector) remains also unchanged. For comparison sake Fig 6 gives also the lines of possible increase of the thrust by discharging the bottles directly into atmosphere through an additional nozzle (horizontal lines in the figure since this does not depend upon the temperature of the air in the intake). For $\theta = 1$ the two effects do not differ much; but for $\theta > 1$ the injector method is much more effective. Next, the author gives relations between the amount of air required for boosting the engine and the time of the boosting operation (Eq 9)

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and the volume of the bottles for this amount of air (Eq 10), while Fig 7 shows these relations in the form of graphs (per one ton of the initial thrust of the engine). Finally, Fig 8 shows how boosting is affected by the temperature of the gases at the entry into the turbine and by the compression ratio of the mechanical compressor. It is seen that the main engine parameters hardly affect the thrust increase and the specific fuel consumption, but the specific consumption of the air is affected strongly. There are 8 figures.

ASSOCIATION: Kafedra teplovykh dvigateley (Chair of Heat Engines) Kazanskiy aviatsionnyy institut (Kazan' Institute of Aeronautical Engineering)

SUBMITTED: March 26, 1958

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29(0);3(?) PHASE I BOOK EXPLOITATION SOV/3182

Shchukin, Viktor Konstantinovich

Shturm neba (Assault on the Sky) 2d ed., rev. Moscow, Fizmatgiz, 1959. 62 p. (Series: Nauchno-populyarnaya biblioteka, vyp. 59) 50,000 copies printed.

Scientific Ed.: N. V. Balyshev; Ed.: V. A. Mezentsov; Tech. Ed.: V. N. Kryuchkova.

PURPOSE: This booklet is intended for the general reader interested in the study of the atmosphere and outer space.

COVERAGE: This booklet is a popular account of Soviet studies of the atmosphere and outer space. Instruments used by the meteorological service are described. Soviet earth satellites and future prospects of space travel are briefly treated. No personalities are mentioned. No references are given.

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AVAILABLE: Library of Congress

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E194/E135

AUTHORS: Fedorov, I.G., Shchukin, V.K., Mukhachev, G.A., and Idiatullin, N.S.

TITLE: Heat transfer and hydraulic resistance of channels with pressed spherical projections

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Aviatsionnaya tekhnika, no.4, 1961, 120-127

TEXT: Plate type heat exchangers are particularly suitable for aviation because of their small size and weight. Sheets with pressed projections are particularly useful because the projections increase the strength and improve the cooling. V.G. Fastovskiy and Yu.F. Petrovskiy (Ref.4: Teploenergetika, no.1, 1959) made an experimental study of a heat exchanger in which the rectangular ducts had spherical projections on the air side and hollows on the steam side. The work showed that the heat transfer coefficient of such surfaces was greater by a factor of 2.5-2.8 than for smooth surfaces. The improvement is attributed to increased turbulence of the flow. The work described here was

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carried out on rectangular ducts consisting of two plates with spherical projections. The projections were of various transverse pitch and were located both in honeycomb and straight line order. The main characteristics of the ducts are given in the table. The relationship Nu = f(Re) was investigated in the range of Reynolds numbers 1000 to 16500, and ξ = f(Re) in the range Re = 500 to 18000. The experimental rig is described. The water sides of the heat exchangers were filled to one third of their height with distilled water and electric heaters were installed to evaporate the water. The water vapour condensing on cooling surfaces gives up its latent heat of vapourisation to a flow of air passing through the ducts of the heat exchanger. The usual measurement arrangements were made. Each of the four bundles described in the table was investigated under about twenty conditions with different rates of air flow covering the Reynolds number range from 500 to 18000; in each case the measurements were repeated after 15-20 minutes. A procedure was worked out and the operation of the equipment was checked by using a smooth-walled plate-type heat exchanger. Further tests showed that the heat balance error calculated from the input to the internal heater and from the change in enthalpy of the cooling air is about 6-10%. The r.m.s. error of the determination of air flow, and of the Re and Nu numbers and of the resistance coefficient are, respectively, 2.2, 2.5, 4.5 and 5%. Heat transfer results are well represented by the following equations.

With honeycomb arrangement:

$$Nu_f = 0.54 \times 10^{-4} Re_f^{1.55} \quad (Re = 1000\text{-}2300), \quad (3)$$

$$Nu_f = 0.95 \times 10^{-3} Re_f^{1.17} \quad (Re = 2300\text{-}10000), \quad (4)$$

$$Nu_f = 0.0276 Re_f^{0.8} \quad (Re = 10000\text{-}16500). \quad (5)$$

With the In-Line arrangement:

$$Nu_f = 0.44 \times 10^{-4} Re_f^{1.55} \quad (Re = 1000\text{-}2300), \quad (6)$$

$$Nu_f = 0.8 \times 10^{-3} \, Re_f^{1.17} \quad (Re = 2300\text{-}10000), \qquad (7)$$

$$Nu_f = 0.0248 \, Re_f^{0.8} \quad (Re = 10000\text{-}16500). \qquad (8)$$

The results show that for given values of the Reynolds number the Nu criterion is 15-20% higher in bundles with honeycomb arrangement of projections than those with the in-line arrangement. The Nu criterion of the bundles is greater by a factor of 2.1-1.65 than the Nu criteria for a bundle of flat sheets in the Re number range 2500-16500. These results are not entirely in line with those given in Ref.4, and the reasons for this are discussed. The following expressions adequately represent the results of resistance tests:

$$\xi = \frac{A}{(Re_f^{0.30})} \quad (Re = 500\text{-}2300), \qquad (9)$$

$$\xi = \frac{B}{Re_f^{0.089}} \quad (Re = 2300\text{-}18000). \qquad (10)$$

The values of the coefficients A and B in Eqs (9) and (10) are given in the table. The results show that ducts with spherical projection have higher resistance than do smooth ducts, the actual amount depending upon the pitch and arrangement of the projections. There are 3 figures and 1 table.

ASSOCIATION: Kafedra teplovykh dvigateley, Kazanskiy aviatsionnyy institut (Department of Heat Engines, Kazan' Aviation Institute)

SUBMITTED: March 10, 1961

Key to Table Headings: (1) Number of bundle; (2) Arrangement of projections; (3) Shape of duct; (4) Length of bundle, mm; (5) Height of bundle, mm; (6) Equivalent diameter $d_{\text{эк}}$ mm; (7) Transverse pitch S_1, mm; (8) Longitudinal pitch S_2, mm; (9) Coefficient A; (10) Coefficient B.

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E025/E435

17 4436
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26.2181

AUTHOR: Shchukin, V.K., Candidate of Technical Sciences

TITLE: The temperature state of porous walls in effusion cooling

PERIODICAL: Teploenergetika, no.1, 1962, 80-82

TEXT: It is stated that the opinion expressed in non-Soviet literature that in the absence of radiated heat the temperature of a cooler at the output of a pore is identical with the temperature of the wall is incorrect. The difference between the temperature of the cooler and that of the wall at the output is determined by the conditions of heat exchange within the wall and on its boundaries and without estimating and taking account of these conditions it is impossible to establish to what extent the temperature of the cooler at the output section approximates to that of the wall. For given temperatures of a hot gas and of a cooler at the input of the cooling system and for given conditions of motion the thermal state of the porous wall can be calculated from a system of four equations each of which describes a balance of heat per 1 m^2 of wall surface. (The propagation of heat along the wall is neglected.) The heat transmitted by thermal

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conductivity through the hot surface of the porous wall equals the change in heat content of the cooler on flowing over the cold surface of the wall and within the pores. The heat transmitted by heat exchange to the cooler in the pores equals the change in heat content of the cooler within the porous wall. The heat transmitted from the hot gas to the wall equals the change in heat content of the cooler from the input of the system to the exit of a pore. The heat given out by cold surface of the porous wall to the cooler equals the change of heat content of the cooler up to its entrance into the porous wall. For the first and second of these relations the variation of wall temperature with thickness is required and for the second relation also the variation of cooler temperature with wall thickness. The corresponding equations are given and solved, and the results compared with those obtained on the assumption that the temperatures of the wall and cooler are equal at the exit of a pore and the relative error calculated. Two numerical examples are quoted (Ref.3: S.A.Druzhinin, Teploenergetika, no.9, 1961) for stainless steel walls with porosities of 30 and 50% respectively, and with air used as the cooler. Curves are given showing the relationship

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between the error in the calculation of the wall temperature caused by the assumption of equality of wall and cooler temperatures and a parameter representing the intensity of heat exchange within the porous wall, and the ratio of the temperatures of the hot gas and cooler. The effect on the error of the thermal conductivity of the porous material, of the thickness of the specimen and of the intensity of heat exchange on the side of the hot gas are shown in the curves. It is apparent from the graphs that the errors are serious: they increase with the ratio of the temperatures of the hot gas and the cooler, with decrease of intensity of heat exchange within the wall, with decrease of the thickness of the wall and of its thermal conductivity. The variation of the error with the coefficient of heat transfer from the hot gas has a maximum. In some of the cases quoted the errors exceed 30%. There are 6 figures and 3 references: 1 Soviet-bloc and 2 non-Soviet-bloc. The two references to English language publications read as follows:
Ref.1: P.Grootenhuis. J. of the Royal Aeronautical Society, no.578, 1959; Ref.2: I. Friedman. J. Am. Rocket Soc., no.79, 1949.

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The temperature state of porous ...

ASSOCIATION: Kazanskiy aviatsionnyy institut
(Kazan' Aviation Institute)

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X

S/096/62/000/006/009/011
E194/E454

AUTHORS: Fedorov, I.G., Engineer, Idiatullin, N.S., Engineer, Shchukin, V.K., Candidate of Technical Sciences, Mukhachev, G.A., Candidate of Technical Sciences

TITLE: Heat transfer and hydraulic resistance of slot shaped ducts with conical indentations in honeycomb arrangement

PERIODICAL: Teploenergetika, no.6, 1962, 57-60

TEXT: Heat transfer and air resistance tests were made on a plate type heat exchanger with ducts 3 mm wide, 145 mm high and 475 mm long. The ducts were made of 0.5 mm sheet in which had been pressed indentations in the shape of truncated cones with a base diameter of 6.5 mm, cone angle of 30° and height of 1.5 mm, arranged in honeycomb order at various pitches. The tips of the cones of one plate were in contact with the corresponding tips of indentations in the opposite plate of the duct. Two such sheets soldered together at the edges and with fixing flanges attached formed the test bundles. Electrically heated water supplied heat to the test bundle and it was removed by a flow of air. The test arrangements are described. The tests were carried out with a

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constant wall temperature of 110°C with an inlet air temperature of 22 to 23.5°C and a discharge air temperature ranging from 91 to 106°C, the mean air pressure in the duct was 1.01 to 1.23 kg/cm^2, the air flow 2 to 92 kg/hour and the specific thermal loading (0.18 to 11.6) x 10^3 kcal/m^2 hour. The difference between the heat input to the heaters and the heat gained by the air was 6 to 10%. The methods used to check the equipment are described. For all the investigated ducts the experimental points lie within $\mp$ 6% of three straight lines of various slopes. The following equation applies for Reynolds numbers Re = 750 to 2500

$$Nu_f = 0.155 \times 10^{-3} Re_f^{1.41} \qquad (1)$$

for Re = 2500 to 10000

$$Nu_f = 1.017 \times 10^{-3} Re_f^{1.17} \qquad (2)$$

and for Re = 10000 to 18000

$$Nu_f = 0.0315 Re_f^{0.8} \qquad (3)$$

Heat transfer and hydraulic ... S/096/62/000/006/009/011
E194/E454

For Reynolds numbers of 2000, 4000 and in the range from 10000 to 18000 the Nusselt criterion for ducts with conical indentations is greater than for a smooth duct by 2.0, 1.62 and 1.75 times respectively. The surface increase caused by the indentations ranges from 5 to 10% so the main cause of greater heat exchange with indentations is increased turbulence of flow. The resistance of the ducts was measured under both isothermal and nonisothermal conditions and the results are given in the form of empirical formulae with constants tabulated for ducts of different shape and pitch. There are 3 figures and 1 table.

ASSOCIATION: Kazanskiy aviatsionnyy institut
(Kazan' Aviation Institute)

Card 3/3

STREL'TSOV, V.V.; SHCHUKIN, V.K.; REBROV, A.K.; FUKS, G.I.; KUTATELADZE, S.S.; LYKOV, A.V.; PREDVODITELEV, A.S.; KONAKOV, P.K.; DUSHCHENKO, V.P.; MAKSIMOV, G.A.; KRASNIKOV, V.V.

Readers' response to I.T. El'perin's article "Terminology of heat and mass transfer" in IFZh No.1, 1961. Inzh.-fiz. zhur. 5 no.7:113-133 Jl '62. (MIRA 15:7)

1. Khimiko-tekhnologicheskiy institut, g. Ivanovo (for Strel'tsov). 2. Aviatsionnyy institut, Kazan' (for Shchukin, Rebrov). 3. Politekhnicheskiy institut, Tomsk (for Fuks). 4. Institut teplofiziki Sibirskogo otdeleniya AN SSSR, Novosibirsk (for Kutateladze). 5. Energeticheskiy institut AN BSSR, Minsk (for Lykov). 6. Gosudarstvennyy universitet imeni Lomonosova, Moskva (for Predvoditelev). 7. Institut inzhenerov zheleznodorozhnogo transporta, Moskva (for Konakov). 8. Institut legkoy promyshlennosti, Kiyev (for Dushchenko). 9. Vsesoyuznyy zaochnyy institut pishchevoy promyshlennosti, Moskva (for Maksimov). 10. Tekhnologicheskiy institut pishchevoy promyshlennosti, Moskva (for Krasnikov).

(Heat—Transmission) (Mass transfer)

SHCHUKIN, V.K., kand.tekhn.nauk

Temperature state of a porous wall in effusion cooling.
Teploenergetika 9 no.1:80-82 Ja '62. (MIRA 14:12)

1. Kazanskiy aviatsionnyy institut.
(Heat--Radiation and absorption)

SHCHUKIN, V.K.; KALMYKOV, I.I.; ZINGER, N.M., kand. tekhn.nauk, retsenzent; FAL'KO, G.S., inzh., red.; EL'KIND, V.D., tekhn. red.

[Gas ejectors]Gazostruinye kompressory. Moskva, Mashgiz, 1963. 145 p. (MIRA 16:8)

(Compressors)

L 20708-66 EWT(1)/EWP(m)/EWT(m)/EWP(w)/EWA(d)/EWP(v)/T-2/EWP(k)/ETC(m)-6/EWA(1)
ACC NR: AT6007554 JD/WW/EM/JXT(CZ) UR/2529/63/000/076/0026/0035

74
B+1

AUTHOR: Shchukin, V.K.

ORG: Kazan Aeronautical Institute, Kazan (Kazanskiy aviatsionnyy institut)

TITLE: Supplemental condition of similitude for flows in the field of mass inertia forces

SOURCE: Kazan. Aviatsionnyy institut. Trudy, no. 76, 1963. Aviatsionnyye dvigateli (Airctaft engines) 26-35

TOPIC TAGS: hydrodynamics, hydrothermodynamics, incompressible fluid, jet engine, flow field, convective flow, turbine blade, jet engine

ABSTRACT: The author develops a generalized criterion of simulitude for an incompressible fluid flow in the field of mass forces. Interest in this topic is generated by the complex character of fluid flow under the action of active mass forces, which decreases the probability of successful analytical solution, and thus favors an experimental approach. Convective flows offer well-known examples of active mass forces phenomena; stronger acceleration filds occur e.g. within the hollow cooled turbine blades of a jet engine. Active mass forces engender special flow patterns, distinct from turbulence or laminar flow, such as the double whirls in flow through bent tubes; toroidal whirls of Taylor in the gap between rotating coaxial cylinders, etc.. Starting

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L 20708-66

ACC NR: AT6007554

with an analysis of convective flows of a heated fluid without forced motion, and of a uniform density fluid with forced rotation, the author analyses the general case of active mass forces determined by simultaneous changes of density and acceleration, using the method of similitude constants. Three interim criteria are obtained; elimination of the velocity variable from one of the criteria leads to the general criterion:

$$P = \frac{\Delta F . l^3}{\rho . \nu^2} \quad (1)$$

where: ΔF - the space differential of force on a fluid element; l - length; ρ - density, and ν - the kinematic viscosity of the fluid. Forms of this general criterion, P, for specific flow cases, are developed. Comparison of the "P" criterion with various criteria of simulitude used at present for the generalization of experimental data pertaining to hydrodynamics and heat exchange in the presence of mass inertia forces shows that these criteria represent special cases of the P- criterion. The P - criterion, for certain specific flow cases, reduces to the criteria of Dean, Taylor, and others. Orig. art. has: 26 formulas.

SUB CODE: 20 SUBM DATE: 14Mar63 ORIG REF: 007 OTH REF: 008

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L 17165-63 EPR/EPF(c)/EWT(l)/EPF(n)-2/BDS AFFTC/ASD/IJP(C)/
SSD Ps-4/Pr-4/Pu-4 WW

ACCESSION NR: AP3004291 S/0170/63/006/007/0007/0012

AUTHOR: Shchukin, V. K.
[redacted]

TITLE: Methods of evaluating the local heat-exchange coefficient in flow around a cylindrical surface

SOURCE: Inzhenerno-fizicheskiy zhurnal, v. 6, no. 7, 1963, 7-12

TOPIC TAGS: Local heat-exchange coefficient, cylindrical surface, radial temperature gradient

ABSTRACT: When a liquid flows in a curved channel (see Fig. 1 of Enclosure 1), there is a secondary circulation which changes the conditions of interaction between liquid and wall, and affects the character of the change in the heat-exchange coefficient according to the length of the channel. If the absence of heat flows along the cylinder axis is to be insured in an experimental setup, the temperature field in the cylindrical walls forming the channel will be two-dimensional. Under this condition, the local heat-exchange coefficients on the surfaces a'b' and dc can be determined from the experimentally measured distribution of the temperatures on the contours a'b'c'd' and abcd, respectively, and

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ACCESSION NR: AP3004291

from the gap in temperatures between liquid and the wall Delta t. Hence, determining the heat-exchange coefficient is simply a matter of finding the radial temperature gradient on the heat-exchange surface from the known temperatures on all the surfaces of the contour. The article discusses the analytical and grid methods of solving this problem. With complete heat isolation of the side and end surfaces and an assigned distribution of the temperatures on surfaces ab and cd (or a'b' and c'd') the temperature field in the area abcd (or a'b'c'd') is found by solving the differential equation of heat conductivity

$$\frac{\partial^2 t}{\partial r^2} + \frac{1}{r}\frac{\partial t}{\partial r} + \frac{1}{r^2}\frac{\partial^2 t}{\partial \varphi^2} = 0.$$

(r = radial coordinate, φ = angular coordinate). Figure 3 (see Enclosure 2) shows that ignoring the curvature of even a thin plate can result in substantial error in determining the temperature gradient from the surface temperatures. The temperature gradient on the wall surface necessary to evaluate the heat-exchange coefficient can also be determined by the grid method described by A. V. Kantorovich, "Tables for the Numerical Solution of the Boundary Problems of the Theory of Harmonic Functions"

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L 17165-63

ACCESSION NR: AP3004291

(Gostekhizdat, 1956) and also discussed in this article. Orig. has 2 diagrams and 17 numbered equations.

ASSOCIATION: Aviatsionnyy institut, Kazan' (Aviation Institute)

SUBMITTED: 08Oct62 DATE ACQ: 08Aug63 ENCL: 002

SUB CODE: PH NO REF SOV: 002 OTHER: 001

Card 3/3

L 17607-65 EWT(1)/EWT(m)/EPF(c)/EPF(n)-2/EPR/EWP(j)/T/EPA(bb)-2/EWA(1) Pc-4/
Pr-4/Ps-4/Pi-4/Pu-4 RPL/ASD(f)-2/AS(mp)-2/AEDC(a)/AFWL/SSD/BSD/AFETR JD/WW/
JW/MLK/RM
ACCESSION NR AM4046716 BOOK EXPLOITATION S/

Bolgarskiy, Andrey Vladimirovich (Professor); Mukhachev, Gennadiy Alekseyevich (Docent); Shchukin, Viktor Konstantinovich (Docent)

Thermodynamics and heat transfer (Termodinamika i teploperedacha), Moscow, "Vy'sshaya shkola", 1964, 457 p. illus., biblio., tables. 9,500 copies printed.

TOPIC TAGS: thermodynamics, heat transfer

TABLE OF CONTENTS [abridged]:

L 17607-65
ACCESSION NR AM4046716

L 17607-65
ACCESSION NR AM4046716

SUB CODE: TD SUBMITTED: 05Jun64 NR REF SOV: 048

OTHER: 018

Card 3/3

SHCHUKIN, V.K.

Determining heat transfer coefficients in a pipe by the temperature distribution on the contour of its longitudinal section. Izv. vys. ucheb. zav.; av. tekh. 7 no.3:96-105 '64.

ACCESSION NR: AP4043425 S/0147/64/000/003/0096/0105

AUTHOR: Shchukin, V. K.

TITLE: Determining the heat loss factors in a tube according to the temperature distribution on the contour of its longitudinal section

SOURCE: IVUZ. Aviatsionnaya tekhnika, no. 3, 1964, 96-105

TOPIC TAGS: heat loss, temperature distribution, thermal insulation, heat transfer

ABSTRACT: The author notes that the determination of the heat loss factor on the basis of the experimentally measured temperature distribution on the surfaces of the wall participating in the heat transfer process eliminates the need for heat flow measurements and imposes no limitations on the possible variation in temperature along the length of the wall. Special attention is called to the work of B. S. Petukhov ("Teploenergetika", No. 10, 1956), containing a discussion of a method for determining the heat loss factor in a tube according to the distribution of temperatures on its generatrices. The author observes that this method was based on the assumption that the ends of the tube were thermally insulated, although experience indicates that this

APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001548920014-7"

ACCESSION NR: AP4043425

condition is extremely difficult to realize in actual practice. In this connection, therefore, the author presents a new method for determining the coefficient of heat loss with an arbitrary distribution of temperatures on all four sides of a longitudinal section through the tube. Since liquid heat loss in a tube with an axiosymmetrical temperature field is considered, the temperature of the liquid in the longitudinal section of the tube is determined from the heat balance (a liquid with no internal heat sources is postulated). An expression is derived for the local heat loss factor for a specific segment. For the axiosymmetrical problem and a constant coefficient of thermoconductivity for the tube (λ), the differential equation of thermoconductivity can be written in the following form:

$$\frac{\partial^2 t}{\partial r^2} + \frac{1}{r}\frac{\partial t}{\partial r} + \frac{\partial^2 t}{\partial z^2} = 0.$$

This equation is solved by the Fourier method. The same problem is also considered for the case in which the wall of the tube has volumetric heat loss

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(such conditions are encountered in the study of heat exchange in a magnetic field with Joule effect liberation in the tubing wall or with the tube heated by the passage of an electrical current). The analysis given in this article for the convergence of series for a tube with thermally insulated ends and internal heat sources in the wall, as well as Petukhov's experimental verification of a method for a tube with thermally insulated ends without internal liberation, provides a basis for the belief that the convergence of the series does not limit the area of applicability of the method. It is also claimed that the same technique can be employed to study heat loss in the case of an external longitudinal flow around the tube. Orig. art. has: 45 numbered formulas and 1 figure.

ASSOCIATION: none

SUBMITTED: 25Jan64 ENCL: 00 SUB CODE: TD

NO REF SOV: 003 OTHER: 000

L 27620-65 EWP(e)/EWT(l)/EWT(m)/EPF(n)-2/EWP(t)/EWP(k)/EWP(b) Pf-4/Pu-4
JD/WW/WE
S/0147/65/000/001/0087/0094
ACCESSION NR: AP5005538

AUTHOR: Shchukin, V. K.; Koval'nogov, A. F.

TITLE: Temperatures of porous plates with internal heat release during effusion cooling

SOURCE: IVUZ. Aviatsionnaya tekhnika, no. 1, 1965, 87-94

TOPIC TAGS: porous plate, coating, heat transfer, fuel element, reactor core

ABSTRACT: The cooling of porous plates with internal heat release by passage of gas can be used in nuclear reactors with porous fuel elements or for heating gas by passage through electrically heated porous plates. The maximum temperature and the temperature profile are of importance for determining the thermal stress in the plate. A method developed previously by P. Schneider is based on the assumption that the temperatures of the gas inside the pores and the pore walls are equal. To investigate the effect of this simplifying assumption, exact formulas were derived which allow for the temperature difference between the gas and the wall, and plots were obtained for the error caused by the simplifying assumption as a function of the heat transfer coefficient and thermal conductivity of the material (porous

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L 27620-65

ACCESSION NR: AP5005538

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steel plates of 50% and 30% porosity). The results showed that a decrease in thermal conductivity increases the error; a change in the heat transfer coefficient has only a slight effect on the error. The maximum temperature can be calculated by the simplified method with sufficient accuracy only when the thermal conductivity is sufficiently high and the porosity comparatively low. Orig. art. has: 4 figures and 29 formulas. [PV]

ASSOCIATION: none

SUBMITTED: 27Dec63 ENCL: 00 SUB CODE: AS, TD

NO REF SOV: 001 OTHER: 004 ATD PRESS: 3190

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L 43895-65 EPF(c)/EPF(n)-2/EPR/EWT(1)/EWG(m) Pr-4/Ps-4/Pu-4 WW
ACCESSION NR: AP5010075 UR/0170/65/008/004/0504/0510

AUTHOR: Shchukin, V. K.

TITLE: Thick wall method for investigating heat transfer in transverse-flow tubes

SOURCE: Inzhenerno-fizicheskiy zhurnal, v. 8, no. 4, 1965, 504-510

TOPIC TAGS: heat transfer, heat conduction, thermal conductivity, Fourier series, temperature distribution

ABSTRACT: Three different expressions are given for calculating thermal diffusivity α by the use of temperature distribution data from tube surfaces. The temperature gradient term in the expression for α, $\alpha = -\frac{\lambda}{\theta_{cp}\varphi}\int_0^{\varphi}\left(\frac{\partial t}{\partial r}\right)_{r_1} d\varphi$, is determined by solving the cylindrical Fourier-conduction equation in two dimensions, subject to boundary conditions, $t(r, \varphi) = t(r, \varphi + 2\pi)$;

$t(r_1, \varphi) = \xi(\varphi)$; $t(r_2, \varphi) = \zeta(\varphi)$. The solution is then extended to the case of temperature-dependent heat source terms in the heat-conduction equation. Expressions for mean and local thermal diffusion coefficients are solved by the network method. This reduces to evaluating the Fourier conduction equation in the

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L 43895-65

ACCESSION NR: AP5010075

modified (Cartesian) form to $\frac{\partial^2 t}{\partial u^2} + \frac{\partial^2 t}{\partial v^2} = 0$, where $u = r_1 \ln(r/r_1)$ and $v = r_1 \varphi$. Orig. art. has: 25 equations and 2 figures.

ASSOCIATION: Aviatsionnyy institut, Kazan' (Kazan Aviation Institute)

SUBMITTED: 20May64. ENCL: 00 SUB CODE: TD, ME

NO REF SOV: 003 OTHER: 000

Card 2/2 cc

SHCHUKIN, Viktor Konstantinovich; GEL'FER, Ya.M., red.

[Heat transfer in nature and technology] Teploobmen v prirode i tekhnike. Moskva, Nauka, 1965. 120 p. (MIRA 18:7)

L 23032-66 EWT(d)/EWT(l)/EWP(m)/EWT(m)/EPF(n)-2/EWA(d)/T/ETC(m)-6/EWA(l) IJP(c)

ACC NR: AP6010034 WW/DJ SOURCE CODE: UR/0170/66/010/003/0357/0362

AUTHOR: Shchukin, V. K.

ORG: Aviation Institute, Kazan' (Aviatsionnyy institut)

TITLE: The effect of the temperature field on the stability of liquid flow between rotating cylinders

SOURCE: Inzhenerno-fizicheskiy zhurnal, v. 10, no. 3, 1966, 357-362

TOPIC TAGS: liquid flow, temperature dependence, heat effect, fuel thermal stability, steady flow, thermal stress

ABSTRACT: On the basis of the Rayleigh method, formulas were obtained for estimating the effect of the value and direction of the heat flux on the stability of liquid between rotating cylinders. It was shown that this effect may be described by the dimensionless parameter K, formula $K = -\beta r_2 b = -\beta r_2 \frac{dt}{dr} = \frac{\beta}{\lambda} r_2 q$, where $K = \frac{\beta}{\lambda} r_2 q$ is a dimensionless complex, r_2 is the radius of the outside cylinder, and q is the heat effect. The value and direction of the heat flux which determine the number K affects essentially the region of the steady motion of the liquid. When $K > 0 (q > 0)$, the increase of the heat flux leads to the expansion of steady flow regions. When the direction of the heat flux revised the steady-flow region becomes narrower. Orig. art. has: 1 figure and 25 formulas. [Based on author's abstract] [NT]

Card 1/2 UDC: 532.5

L 23032-66

ACC NR: AP6010034

SUB CODE: 20/ SUBM DATE: 28Jun65/ ORIG REF: 002/ OTH REF: 003

Card 2/2

ACC NR: AP6030333 SOURCE CODE: UR/0170/66/011/002/0171/0176

AUTHOR: Shchukin, V. K.

ORG: Kazan' Aviation Institute (Aviatsionnyy institut)

TITLE: Correlation of experimental data on hydraulic resistance in tubes with band-type turbulence generators

SOURCE: Inzhenerno-fizicheskiy zhurnal, v. 11, no. 2, 1966, 171-176

TOPIC TAGS: hydraulic resistance, laminar flow, turbulence generator

ABSTRACT: The mechanisms of a fluid flow in a tube with a band-type turbulence generator, and in a coil are similar. This similarity yields a dimensionless equation for the correlation of experimental data on hydraulic resistance in tubes with band-type turbulence generators in a laminar flow with macrovortices and in a turbulent flow. The channel between the turbulizer and the wall of the tube is a coil with a semicircular cross section. The curvature of the channel depends on the pitch of the turbulence generator. Orig. art. has: 3 figures and 9 formulas. [Author's abstract]

SUB CODE: 20/SUBM DATE: 23Mar66/ORIG REF: 002/OTH REF: 005/

Card 1/1 UDC: 532.5+532.503.2

ACC NR: AP6036865

surface being insulated; and 3) a duct with heat transfer through both surfaces. The obtained results indicate that the magnitude and direction of heat flux, and the point of heat addition or removal do affect the location and size of the flow stability zones in a curvilinear duct, and, consquently, the flow regime, heat transfer conditions, and hydraulic resistance. Orig.art. has: 3 figures and 21 formulas. [WA-88]

SUB CODE: 21/ SUBM DATE: 28Jun65/ ORIG REF: 003/ OTH REF: 002

Card 2/2

SHCHUKIN, V. M.

2918. RAPID METHOD FOR ANALYSIS OF PEAT FOR ASH. Shchukin, V.M. and Storchak, E.E. (Torf. Prom. (Peat Ind., Moscow), 1953, (10), 11-14; abstr. in Ref. Zh. Khim. (Ref. J. Chem., Moscow), 1956, (13), 40620). Each author proposes a method. The Shchukin method consists in calcining a 6 to 6.5 g sample in a steel alloy pan, 85-100 mm in diameter, in a muffle furnace at 800 to 900°C. The Storchak method consists in ashing 2 to 3 g samples in porcelain boats on an electric hot plate and subsequently calcining with a heat radiating lamp. The methods are intended as quick checks for peat producers and users, and give results within 0.5% of the standard method.

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BOBRIYEVICH, A.P., sotrudnik; BONDARENKO, M.N., sotrudnik; GNEVUSHEV, M.A., sotrudnik; KIND, N.D., sotrudnik; KORESHKOV, B.Ya., sotrudnik; KURYLEVA, N.A., sotrudnik; NEFEDOVA, Z.D., sotrudnik; POPUGAYEVA, L.A., sotrudnik; POPOVA, Ye.E., sotrudnik; SKUL'SKIY, V.D., sotrudnik; SMIRNOV, G.I., sotrudnik; YURKEVICH, R.K., sotrudnik; FAYNSHTEYN, G.Kh., sotrudnik; SHCHUKIN, V.N., sotrudnik; BUROV, A.P., nauchnyy redaktor; SOBOLEV, V.S., nauchnyy redaktor; VERSTAK, G.V., redaktor izdatel'stva; KRYNOCHKINA, K.V., tekhnicheskiy redaktor

[Diamonds of Siberia] Almazy Sibiri. [Moskva] Gos.nauchno-tekhn. izd-vo lit-ry po geol. i okhrane nedr, 1957. 157 p. (MLRA 10:7)

1. Russia (1923- U.S.S.R.) Ministerstvo geologii i okhrany nedr. 2. Amakinskaya ekspeditsiya Glavuralsibgeologii Ministerstva geologii i okhrany nedr SSSR (for Bobriyevich, Bondarenko, Gnevushev, Kind, Koreshkov, Kuryleva, Nefedova, Popugayeva, Popova, Skul'skiy, Smirnov, Yurkevich, Faynshteyn, Shchukin)
(Siberia--Diamonds)

25(5) PHASE I BOOK EXPLOITATION SOV/2393

Leningrad. Politekhnicheskiy institut

Mashinostroyeniye; ekonomika, organizatsiya i planirovaniye proizvodstva (Machinery Manufacturing; Economics, Organization and Planning of Production) Moscow, Mashgiz, 1958. 110 p. (Series: Its: Trudy, Nr 200) Errata slip inserted. 2,800 copies printed.

Sponsoring Agency: USSR, Ministerstvo vysshego obrazovaniya.

Resp. Ed.: V.S. Smirnov, Doctor of Technical Sciences, Professor; Eds.: Ye. M. Karlik, Candidate of Economic Sciences, Docent; and S.A. Sokolitsyn, Candidate of Technical Sciences, Docent; Tech. Ed.: R.G. Pol'skaya.

PURPOSE: This collection of articles is intended for engineering and technical personnel of machine-manufacturing establishments.

COVERAGE: This collection covers the theoretical aspects of the

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economics, organization, and planning of production and the actual operation of machine-manufacturing establishments. The first five articles deal with problems of classifying production lines for lot production, variations of the flow of lots of parts, and duration of the machining cycle, etc. The remaining articles are devoted to the economic efficiency of new technology, problems of quality control, and to the question of specialization and cooperation. No personalities are mentioned. References are given at the end of several articles.

TABLE OF CONTENTS:

Machinery Manufacturing; (Cont.) SOV/2393

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28(5) SOV/115-59-4-10/27

AUTHOR: Shchukin, V.N.

TITLE: Producing Spare Parts for Measuring Devices and Instruments (Vypuskat' zapasnyye detali k izmeritel'nym priboram i instrumentam)

PERIODICAL: Izmeritel'naya tekhnika, 1959, Nr 4, p 16 (USSR)

ABSTRACT: The author states that a number of instrument plants does not produce any spare parts for rapid wearing parts. He mentions vernier calipers, produced by the plant "Kalibr", dial indicators manufactured by the plant "Krasnyy instrumental'shchik" and inside micrometer calipers. The author demands that the instrument plants produce the required spare parts.

Card 1/1

[illegible], [illegible] Cand Tech Sci -- (diss) "[illegible] of calculation of [illegible] variants of equipment and technological [illegible] in the [illegible] process in the [illegible] [illegible]." Leningrad, [illegible] (Ministry of [illegible] and [illegible] [illegible] Leningrad Polytechnic Inst im [illegible]) [illegible] copies; price not given; (KL, [illegible]-[illegible], [illegible])

APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001548920014-7"

SHCHUKIN, V.N.

Problems of repairing measuring equipment have been set aside. Izm. tekh. no.3:56 Mr '60. (MIRA 13:6)
(Measuring instruments--Maintenance and repair)

ZVEDER, L.N.; SHCHUKIN, V.N.

Nature of faults in the Daaldnyskii kimberlite region. Geol. i geofiz. no.6:132-134 '60. (MIRA 13:9)

1. Vostochno-Sibirskiy geologicheskiy institut Sibirskogo otdeleniya AN SSSR.

(Siberia--Kimberlite)

BOBRIYEVICH, A.P.; KRYATOV, B.M.; SHCHUKIN, V.N.

Some data on the geology and petrography of Siberian kimberlites.
Trudy IAFAN SSSR. Ser.geol. no.6:24-36 '61. (MIRA 14:9)
(Daldyn Valley--Kimberlite)

SHCHUKIN, V.N.; KRYATOV, B.M.; VOLOTOVSKIY, A.G.

Relationship between kimberlites and traps. Trudy IAFAN SSSR. Ser.geol. no.6:45-48 '61. (MIRA 14:9)
(Siberian Platform--Kimberlite)
(Siberian Platform--Rocks, Igneous)

KOZLOV, I.T.; SHCHUKIN, V.N.

Weathering surface on trap rocks in the central part of the Siberian Platform. Geol. i geofiz. no.2:137-140 '64. (MIRA 18:4)

1. Amakinskaya ekspeditsiya, poselok Nyurba.

SHCHUKIN, V.N.

Repair of dial indicators. Izm.tekh. no.3:13-14 Mr '63.
(MIRA 16:4)

(Recording instruments)

L 41684-65 EWT(m) Peb DIAAP
ACCESSION NR: AT5003176 S/3065/62/000/041/0045/0063 24 23 B+1

AUTHOR: Shchukin, V. P.

TITLE: Design of laboratory buildings for work with radioactive materials

SOURCE: Moscow. Inzhenerno-stroitel'nyy institut. Sbornik trudov, no. 41, 1962. Kafedra stroitel'stva yadernykh ustanovok. Proyektirovaniye i stroitel'stvo yadernykh ustanovok (Department for the construction of nuclear engineering installations. Design and construction of nuclear engineering installations), 45-63

TOPIC TAGS: laboratory architecture, radioactive material processing, 17 nuclear laboratory design, isotope laboratory design, radiation shielding, laboratory personnel safety

ABSTRACT: The author is concerned with planning considerations and architectural approaches to radioactive materials installations. He begins by reviewing the conditions which lead to problems in architectural planning of buildings for radioactive research and processing, and points out that the human operator can be exposed to nuclear radiations either by penetrating radiation from the outside (mainly gamma radiation) or by direct contact between radioactive materials and

Card 1/3

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human organs, such as the skin, blood etc., as in the case of ingestion. Attention is directed to the basic hazard of any inadequately sealed radioactive material, because of possible evaporation, travel as dust, and adsorption onto various surfaces. By any one of these processes, the premises can become contaminated and present a continuing danger. The shielding of personnel and sensitive instruments and the prevention of contamination thus become the two basic safety problems in a nuclear laboratory. Requirements for building design are then listed as conditioned by: safety rules, the branch of science involved, laboratory mission and programs, equipment and specific activities. Architectural considerations dictate balancing of constructional and operational constraints. An example is presented involving the mutual positioning of hot chambers, e.g. between "clean" and "dirty" zones, which enables them to be operated from the clean zone, while repairing and maintaining them from the dirty zone. An important structural consideration is the provision of appropriate floor strength to support the heavy protective containers carrying radioactive materials within the installation. Pointers on architectural planning, construction elements and interior finishing are given. The subject of hot chamber location and some

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architectural solutions are reviewed. Conditions favoring separate hot chambers within each individual building, versus the provision of a separate hot chamber building within the installation, are discussed. Constructional integration of hot chambers is discussed, with the alternatives of embedding the primary structural members in the chamber walls or of designing the chambers themselves as primary structural members. Flexibility in the architectural approach, with adjustment to the specific needs of the installation, is advocated. Orig. art. has: 11 figures.

ASSOCIATION: Kafedra stroitel'stva yadernykh ustanovok, Moskovskiy inzhenerno-stroitel'nyy institut, (Department for the Construction of Nuclear Engineering Installations, Moscow Engineering and Construction Institute)

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Card 3/3

SHCHUKIN, V.R., inzhener.

Shortcomings of the multiple firing method. Bezop.truda v prom. 1 no.8:8-10 Ag '57. (MLRA 10:8)

1.Nachal'nik upravleniya Stalinskogo okruga Gosgortekhnadzora SSSR.
(Donets Basin--Coal mines and mining)

SHCHUKIN, V.R., inzh.

Evaluating the safety of roof control methods at Donets Basin mines. Bezop.truda v prom. 2 no.9:6-8 S '58. (MIRA 11:9)

1. Upravleniye Stalinskogo okruga Gostorgtekhnadzora USSR.
(Donets Basin--Coal mines and mining--Safety measures)

SHCHUKIN, V.R., inzh.

Brigades of Communist labor in Donets Basin mines. Bezop. truda v prom. 3 no.6:1-2 Je '59. (MIRA 12:10)

1. Nachal'nik upravleniya Stalinskogo okruga Gosgortekhnadzora USSR.
(Donets Basin--Efficiency, Industrial)

SHCHUKIN, V.R., inzh.

Improving technical mine inspection. Bezop. truda v prom. 3 no.11: 26-29 N '59. (MIRA 13:3)

1.Nachal'nik upravleniya Stalinskogo okruga Gosgortekhnadzora USSR.

(Mine inspection)

SHCHUKIN, V.R., inzh.; BERDNIKOV, M.D., inzh.

Over-all inspection of caol mines of the Stalino Economic Council.
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(Stalino Province—Mine inspection)

SHCHUKIN, V.R.

Safety measures in baring coal intercalations. Bezop.truda v prom. 5 no.6:3-5 Je '61. (MIRA 14:6)

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(Coal mines and mining--Safety measures)

SHCHUKIN, V.R., inzh.

Improving work safety in mining. Bezop.truda v prom. 5 no.7:35-36 Jl '61. (MIRA 14:6)

1. Nachal'nik upravleniya Stalinskogo okruga Gosgortekhnadzora USSR.

(Coal mines and mining--Safety measures)

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Efficiency methods for the control of sudden outbursts. Ugol' Ukr. 5 no.11:41-43 N '61. (MIRA 14:11)

1. Nachal'nik upravleniya Stalinskogo okruga Gosgortekhnadzora USSR.
(Mine gases) (Coal mines and mining--Safety measures)

SHEVYAKOV, L.D., akademik; IVANOV, A.M.; BUBYR', V.A., gornyy inzh.; MONIN, M.I., gornyy inzh.; NEKRASOVSKIY, Ya.E., doktor tekhn.-nauk; SHCHUKIN, V.R.

Readers' response to A.A.Shamin, A.M.Belen'kii, and A.V.Galkin's article "Pillar systems of mining flat seams without undermining the wall rock in the development operations." Ugol' Ukr. 6 no.9:43-47 S '62. (MIRA 15:9)

1. Upravlyayushchiy trestom Rutchenkovugol' (for Ivanov).
2. Gosudarstvennyy institut po proyektirovaniyu shakhtnogo stroitel'stva v yuzhnykh rayonakh SSSR (for Bubyr', Monin).
3. Dnepropetrovskiy gornyy institut (for Nekrasovskiy).
4. Nachal'nik upravleniya Donetskogo okruga Komiteta po nadzoru za bezopasnym vedeniyem rabot v promyshlennosti i gornomu nadzoru pri Sovete Ministrov UkrSSR (for Shchukin).

(Shamin, A.A.) (Belen'kii, A.M.) (Galkin, A.V.)

KHODOT, V.V., doktor tekhn. nauk, red.; BOBROV, I.V., kand. tekhn. nauk, red.; RUDCHENKO, V.P., red.; TABAKOV, A.G., red.; SHCHUKIN, V.R., red.; KULIKOV, A.F., red.; ANDROSOV, M.S., otv. red.; SHEVYAKOV, F.D., otv. red.; POTAPOV, V.I., otv. red.; PREMYSLER, Yu.S., otv. red.; VINOGRADOVA, G.V., red. izd-va; IL'INSKAYA, G.M., tekhn. red.; BOLDYREVA, Z.A., tekhn. red.

[Control of sudden outbursts in coal mines; proceedings of the scientific and technical conference held in Donets in December 1960]Bor'ba s vnezapnymi vybrosami v ugol'nykh shakhtakh; sbornik trudov nauchno-tekhnicheskogo soveshchaniia, sostoiavshegosia v gor. Donetske v dekabre 1960 g. Moskva, Gosgortekhizdat, 1962. 602 p. (MIRA 15:9)

1. Institut gornogo dela imeni A.A.Skochinskogo (for Khodot). 2. Kombinat "Donetskugol'" (for Rudchenko). 3. Gosudarstvennyy komitet pri Sovete Ministrov Ukrainskoy SSR po nadzoru za bezopasnym vedeniyem rabot v promyshlennosti i gornomu nadzoru, Donetskiy okrug (for Shchukin).
(Coal mines and mining—Safety measures)

SHCHUKIN, V.R., inzh.

Improve mining engineering control. Bezop. truda v prom. 7 no.12: 1-2 D '63. (MIRA 18:7)

1. Nachal'nik Upravleniya Donetskogo okruga Gosudarstvennogo komiteta pri Sovete Ministrov UkrSSR po nadzoru za bezopasnym vedeniyem rabot v promyshlennosti i gornomu nadzoru.

RATTS, Emmanuil Genrikhovich, kand.tekhn.nauk; TSEYTLIN, Sholom Yudovich, kand.tekhn.nauk; MASARSKIY, Aba Solomonovich; SHCHUKIN, Viktor Semenovich, starshiy inzh.; UKRAINCHIK, M.M., inzh., red.

[Large prestressed concrete "Double T" slabs for roofs of buildings] Predvaritel'no napriazhennye zhelezobetonnye krupnye paneli "dvoinoe T" dlia pokrytii zdanii; iz opyta NIIZHelezobetona i zavoda No.22 Glavmospromstroimaterialov. Moskva, Gos.izd-vo lit-ry po stroit., arkhit. i stroit.materialam, 1960. 27 p. (MIRA 14:12)

1. Akademiya stroitel'stva i arkhitektury SSSR. Institut organizatsii, mekhanizatsii i tekhnicheskoy pomoshchi stroitel'stvu. Byuro tekhnicheskoy informatsii. 2. Zaveduyushchiy laboratoriyey sbornykh zhelezobetonnykh konstruktsiy Nauchno-issledovatel'skogo instituta zhelezobetonnykh izdeliy i nerudnykh materialov (for Ratts). 3. Zaveduyushchiy sektorom inzhenernykh konstruktsiy Nauchno-issledovatel'skogo instituta zhelezobetonnykh izdeliy i nerudnykh materialov (for TSeytlin). 4. Glavnyy inzh. zavoda No.22 Glavmospromstroymaterialov (for Masarskiy). 5. Nauchno-issledovatel'skiy institut zhelezobetonnykh izdeliy i nerudnykh materialov (for Shchukin).

(Precast concrete construction)
(Roofing, Concrete)

USOV, Nikolay Ivanovich; SHCHUKIN, Valentin Timofeyevich; GAL'PERIN, S.Yu., nauchnyy red.; UDAL'TSOV, O.A., red.; GURDZHIYEVA, A.M., tekhn. red.

[Even in days of peace there is room for heroic deeds] I v mirnye dni est' mesto podvigam. Leningrad, Ob-vo po rasprostraneniiu polit. i nauchn. znanii RSFSR, 1962. 50 p. (MIRA 15:10)

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[International railroad transportation] Mezhdunarodnye zheleznodorozhnye soobshcheniia. Pod red. M.P.Voronicheva. Moskva, Gos. transp.zhel-dor.izd-vo, 1959. 242 p. (MIRA 13:2)
(Railroads)

SHCHUKIN, V.Ya.

International transportation organizations and the part played in them by the railroads of the U.S.S.R. Zhel. dor. transp. 41 no.5:78-84 My '59. (MIRA 12:7)

1.Zamestitel' nachal'nika upravleniya mezhdunarodnykh soobshcheniy Ministerstva putey soobshcheniya.
(Railroads)

SHCHUKIN, V.Ya.

Cooperation of socialist countries in the field of transportation. Zhel.dor.transp. 43 no.10:83-87 O '61. (MIRA 14:9)

1. Zamestitel' nachal'nika Upravleniya mezhdunarodnykh soobshcheniy Ministerstva putey soobshcheniya.
(Railroads--International cooperation)

PATRIKEYEV, A.B., inzh., SHCHUKIN, Ya.A., inzh.

Horizontal force interaction of running wheels of rail bridge cranes. Vest. mashinostr. 45 no.1:31-34 Ja '65.

(MIRA 18:3)

SHCHUKIN, Ya.A.; MELESHKO, I.S.

Changing the design of supporting walls of sliding pipes in a continuous furnace. Sbor.rats.predl.vnedr.v proizv. no.5:34-35 '60. (MIRA 14:8)

1. Magnitogorskiy metallurgicheskiy kombinat.
(Furnaces, Heating)

FEDORENKO, N.; SHCHUKIN, Ye., kand. ekonom. nauk

Production of synthetic materials should have a stable raw material base. NTO 5 no.3:43-44 Mr '63. (MIRA 16:4)

1. Chlen-korrespondent AN SSSR, predsedatel' ekonomicheskoy sektsii TSentral'nogo pravleniya Vsesoyuznogo khimicheskogo obshchestva imeni Mendeleyeva (for Fedorenko).
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SHCHUKIN, V.Ya.

Expansion of international communications is an important factor for the strengthening of economic and cultural relations. Zhel. dor.transp. 42 no.9:37-40 S '60. (MIRA 13:9)

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(Railroads--Internation cooperation)

MOUSSLY, Nazim; PAVLOV, M.M. [translator]; SHCHUKIN, Ye.A., redaktor; SHAPOVALOV, V.I., tekhnicheskiy redaktor.

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