APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515120001-6"

SOV/124-58-11-12695

Translation from: Referativnyy zhurnal, Mekhanika, 1958, Nr 11, p 109 (USSR)

AUTHOR: Ginevskiy, A. S.

TITLE: Influence of the Viscosity of a Fluid on the Intensity of the Circulation About a Fluid Foil in a Hydrodynamic Cascade (Vliyaniye vyazkosti zhidkosti na velichinu tsirkulyatsii vokrug profilya gidrodinamicheskoy reshetki)

PERIODICAL: V sb.: Prom. aerodinamika. Nr 9, Moscow, Oborongiz, 1957, pp 5-15

ABSTRACT: An investigation of the dependence on the fundamental geometric parameters of a plane cascade of the ratio $k_\Gamma = \Gamma / \Gamma_{id}$, i.e., the ratio of the circulation about a cascade foil of a viscous incompressible fluid flow and the corresponding circulation of an ideal fluid. It is assumed that the fluid foil differs only little from straight segments. Equating to zero the total vorticity of the flow downstream of the cascade is tantamount to equating the velocities at the outer boundary of the boundary layer shedding from the fluid foil. Applying this condition to the flow of an ideal fluid through a cascade of foils, the author obtains (with an accuracy up to the terms of δ^2 order)

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Influence of the Viscosity of a Fluid on the Intensity of the Circulation (cont.) SOV/124-58-11-12695

$$k_\Gamma = 1 - k\sqrt{\bar{\delta}_V \, \bar{\delta}_N}$$

where k is a function of the solidity ratio and escape losses of the cascade, and $\bar{\delta}_V$ and $\bar{\delta}_N$ are the nondimensional thicknesses of the boundary layers shedding from the upper and lower sides of the foil, respectively. The calculated values of k_Γ tend toward unity as the solidity ratio increases and the angle of escape decreases. Using experimental data for compressor cascades consisting of solid fluid foils with a shockfree entry, the author obtains $k_\Gamma = 0.86-0.93$. The results of the investigation, on the whole, bear a qualitative character.

L. G. Naumova

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APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515120001-6"

PA - 2127

AUTHOR: FEDYAYEVSKIY,K.K., GINEVSKIY,A.S.

TITLE: The Computation Method of a Turbulent Boundary Layer in the Case of the Existence of a Transverse Pressure Gradient (Metod rascheta turbulentnogo pogranichnogo sloya pri nalichii prodol'nogo gradyenta davleniya. Russian).

PERIODICAL: Zhurnal Tekhn. Fiz., 1957, Vol 27, Nr 2, pp 309 - 326 (U.S.S.R.)
Received: 3 / 1957 Reviewed: 4 / 1957

ABSTRACT: A simple approximated method for the computation of the characteristics of a turbulent boundary layer is described. For the purpose of a simplification of the equations for the velocity profile and the law of resistance not τ, but $\sqrt{\tau}$ is represented as a polynomial according to y-powers. At first the velocity profile is derived in a turbulent boundary layer. Next, the formula for the law of resistance is derived and reduced to a form suited for computation. The significance of the constants $\varkappa$ and α is mentionded. Both are experimentally determined. For practical purposes $\varkappa = 0.4$ and $\alpha = 11,5$ can be assumed. A diagram represents the law of resistance. In the next chapter the impulse equations are integrated and it is shown on this basis in what manner the location of the point in which the liberation of the turbulent boundary layer takes place is determined. Computed and experimental results were compared and were found to be in good agreement. The computation method of the characteristics of the twodimensional turbulent boundary layer with essential transverse cross gradients of pressure is distinguished

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The Computation Method of a Turbulent Boundary layer in the Case of the Existence of a Transverse Pressure Gradient. PA - 2127

by a sufficient operation capacity and makes it possible already in first approximation, to determine the conditional thickness of the layer as well as the value of the local friction coefficient and the location of the point at which liberation takes place. The graphical representation of the law of resistance obtained shows the possibility of the occurence of special states accompanied by a considerable reduction of the local friction ceefficient. From this it follows immediately that at certain relations and in the case of a positive cross gradient of pressure conditions are created which lead to the liberation of the turbulent boundary layer. (11 illustrations and 2 tables)

ASSOCIATION: Not given
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SUBMITTED: 25.4.1956
AVAILABLE: Library of Congress.

Card 2/2

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515120001-6"

SOV/124-58-8-8889

Translation from: Referativnyy zhurnal, Mekhanika, 1958, Nr 8, p 80 (USSR)

AUTHORS: Solodkin, Ye.Ye., Ginevskiy, A.S.

TITLE: The Turbulent Flow of a Viscous Fluid in the Inlet Portion of Axisymmetric and Plane Channels (Turbulentnoye techeniye vyazkoy zhidkosti v nachal'nykh uchastkakh osesimmetrichnykh i ploskikh kanalov)

PERIODICAL: Tr. Tsentr. aero-gidrodinam. in-ta, 1957, Nr 701, 57 pp, ill.

ABSTRACT: An approximate solution is offered for the problem of the turbulent boundary layer and resistance in the inlet portion of: 1) An axisymmetric divergent channel having a zero pressure gradient, 2) a circular conduit, and 3) a plane channel. Attention is given herein to the matter of the influence exerted by the transverse curvature of the channel surface on the velocity profile, the local friction coefficient, and on the other characteristics of the turbulent boundary layer. The authors considered that in the channel's inlet section the velocity is constant and that the static pressure across the width of the boundary layer does not vary. Analysis of the differential

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The Turbulent Flow of a Viscous Fluid (cont.)

equations describing the mean stationary flow in the channel's turbulent boundary layer revealed that near the surface (correct up to the terms of the third order) the tangential-stress distribution across the width of the layer obeys the condition $r \tau = \text{const} = r_0 \tau_0$. Here r is the radius of a fluid element in the boundary layer, r_0 is the radius of the channel cross section, τ is the frictional stress in the boundary layer, and τ_0 is the frictional stress at the channel surface. Taken together with the Prandtl relationship $\tau = \rho l^2 (\partial u/\partial y)^2$, [wherein ρ is the density of the liquid, l the turbulent mixing length, and $\partial u/\partial y$ the mean-flow-velocity gradient normal to the channel wall] , this permits the evolvement of a formula for the velocity profile in the turbulent boundary layer of an axisymmetric channel. When $r_0 \to \infty$, the formula reverts to the well-known logarithmic velocity profile of the turbulent layer of a plate. In the immediate vicinity of the channel wall the velocity distribution is arrived at on the basis of the hypothesis which posits the existence of a laminar sublayer in which $\tau = \mu \, \partial u/\partial y$ (μ being the viscosity coefficient of the liquid). The resistance law is obtained by equating the two velocity distributions at the boundary of the laminar sublayer. The thickness of the laminar sublayer is determined from the usual relationship, $\delta^0 = a_1 \nu / v_*$, wherein $\nu = \mu/\rho$. The calculations were performed on the assumption that the turbulence constants k_1 and α_1 maintain values equaling the corresponding values for the case of a plate, namely, $k_1 = 0.392$ and $\alpha_1 = 11.5$. As a result of integration of the impulse equation, a determination is made, for different values of the Reynolds number, of the aerodynamic characteristics of an axisymmetric divergent channel having a zero pressure gradient, and an analysis is performed of the influence exerted by the transverse curvature of a concave surface on the characteristics of the boundary layer. It is demonstrated that because of the curvature of the surface the velocity profile becomes less bulgy, which circumstance reduces correspondingly the coefficient of frictional resistance (as compared with cases in which the channel is a flat surface). Moreover, the influence exerted by a transverse curvature of the surface becomes especially significant when the ratio δ/r_0 approaches unity. The data obtained are used to solve next the problem relating to the inlet portion of a circular conduit. Here the influence exerted by the longitudinal pressure gradient is taken into account only in the impulse equation. By solving the problem the authors arrive at the aerodynamic characteristics of the inlet portion of a circular conduit, including the length of the inlet portion for different values of the Reynolds number. When determined by this means, the length of a circular conduit's inlet portion exceeds by a factor of approximately three

The Turbulent Flow of a Viscous Fluid (cont.)

its length as calculated from the velocity power profile (as per the Lattsko theory), and exceeds by a factor of two its length as calculated with a logarithmic velocity profile (as per the Shablevskiy theory), but it does approximate very closely the length obtained experimentally (by Kirsten). In conclusion the aerodynamic characteristics are calculated for the inlet portion of a plane channel for a logarithmic velocity distribution in the boundary layer. Inasmuch as a circular conduit and a plane conduit represent two limiting cases of an annular-section conduit, the relationship found to exist between the aerodynamic characteristics and the length of either type of channel is depicted for both cases on a single graph. It is shown that, if a channel's hydraulic radius is taken as its characteristic linear dimension, the stated relationships will be virtually the same in the two cases, i.e., in that of a plane and in that of a circular conduit, and that they may therefore be employed to determine the characteristics of the inlet portion of an annular-section conduit.

V.I. Yagodkin

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DOVZHIK, Samuil Aronovich; GINEVSKIY, A.S.,kand.tekhn.nauk,red.; SHEYNFAYN, L.I., izdatel'skiy red.; YEVSTIGNEYEVA, M.N.,tekhn.red.

[Designing blades of subsonic axial-flow compressors] Profilirovanie lopatok osevogo dozvukovogo kompressora. Moskva, Oborongiz. 1958. 138p. (Promyshlennaia aerodinamika No.11) (MIRA 11:12)
(Compressors--Blades) (Aerodynamics)

YUDIN, Yevgeniy Yakovlevich; GINEVSKIY, A.S., kand.tekhn.nauk, red;
SHEYNFAYN, L.I., izdatel'skiy red.; ZUDAKIN, I.M., tekhn.red.

[Investigation of noises in ventilation installations and methods for preventing them] Issledovanie shuma ventiliatornykh ustanovok i metodov bor'by s nim. Moskva, Gos. izd-vo obor. promyshl., 1958. 227 p. (Moscow, TSentral'nyi aero-gidrodinamicheskii institut. Trudy, no.713). (MIRA 11:4)
(Ventilation) (Acoustical engineering)

GINEVSKIY, A.S.

Investigating two systems for changing blading areas in axial-flow compressor stages. Prom. aerodin. no.10:61-76 '58.

(MIRA 11:8)

(Compressors)

GINEVSKIY, A.S.; SOLODKIN, Ye.Ye. (Moskva)

Effect of lateral surface curvature on the characteristics of the axisymmetric turbulent boundary layer. Prikl.mat. i mekh. 22 no.6:819-825 N-D '58. (MIRA 11:12)

(Boundary layer)

GINEVSKIY, A.S.

21(1) PHASE I BOOK EXPLOITATION SOV/2685

Tsentral'nyy aero-gidrodinamicheskiy institut

Ventilyatory i vozdukhoprovody (Ventilators and Air Ducts) Moscow, Oborongiz, 1959. 249 p. (Series: Promyshlennaya aerodinamika, sbornik No. 12) Number of copies printed not given.

Ed. (Title page): K.A. Ushakov, Professor; Ed. (Inside book): A.S. Ginevskiy, Candidate of Technical Sciences; Ed. of Publishing House: Z.A. Chekhtman; Tech. Ed.: I.M. Zudakin; Managing Ed.: A.S. Zaymovskaya, Engineer.

PURPOSE: This book is intended for engineers, technicians and scientific workers specializing in the field of industrial aerodynamics and ventilation.

COVERAGE: This collection of 14 articles deals with problems of ventilation technology. Results of experimental and theoretical investigations of the aerodynamic characteristics of axial and centrifugal fans are described. Some designs of new, highly economical centrifugal fans are presented and the drag coefficients of various ducts and elements of ventilation systems are given. No personalities are mentioned. References follow most articles.

6. Kovalenko, V.M., and K.V. Chebysheva Regulation of Centrifugal Fans With Inlet Guide Vanes 70

The article presents experimental materials on regulating centrifugal fans by means of axial and simplified guide apparatus. On the basis of these materials and data of flow investigations behind upstream guide vanes and centrifugal impellers, a method for calculating the characteristics of fans with axial guide vanes is elaborated.

7. Chebysheva, K.V. Centrifugal Fan Volume Regulation by Changing the Passage Section of the Wheel or of the Body 110

The author describes investigations of fan model TsA-70 with flat inclined blades developed by TsAGI. This fan has good aerodynamic characteristics and is now mass-produced as a general purpose fan. Comparative results of tests are given.

8. Bychkov, A.G., I.L. Lokshin, and P.O. Marmanyants. New Types of TsAGI Centrifugal Fans 125

This article describes ten types of new centrifugal fans. These fans were designed by TsAGI in 1956-1957 and have a high efficiency coefficient η=0.76-0.85. It is suggested that some of them might replace less efficient fans now in production. The article states that 180,000 fans are currently produced in the USSR per year and operation of these fans requires 800,000 kw.

9. Ginevskiy, A.S., and Ye.Ye. Solodkin. Aerodynamic Characteristics of the Initial Sector of a Circular Section Duct During Turbulent Flow in the Boundary Layer 159

The authors describe an approximate method for calculating the turbulent boundary layer in the initial sector of an annular duct taking account of the influence of the transversal curvatures of the internal and external convex and concave surfaces of given radiuses on the shape of the velocity profile and on other characteristics of the turbulent boundary layer.

10. Solodkin Ye.Ye. and A.S. Ginevskiy. The Influence of Initial Unsteady Flow on the Characteristics of Diffuser Ducts 168

Results of a theoretical investigation of the influence of initial unsteadiness of flow in the inlet section of a plane diffuser with straight walls on diffuser characteristics show: coefficient of full pressure losses, efficiency coefficient, maximum degree of diffuser expansion, etc.

SOV/24-59-1-7/33

AUTHORS: Ginevskiy, A.S., and Dovzhik, S.A., (Moscow)

TITLE: Experimental Determination of the Pressure Loss in the Rotating Vanes of Axial Compressors (Eksperimental'noye issledovaniye poter' davleniya vo vrashchayushchemsya kolese osevogo kompressora)

PERIODICAL: Izvestiya Akademii Nauk SSSR, Otdeleniye Tekhnicheskikh Nauk, Energetika i Avtomatika, 1959, Nr 1, pp 45-52 (USSR)

ABSTRACT: In this paper, the results are described of experimental investigation of the pressure loss in the rotating vanes of an axial compressor at low circumferential speeds. On the basis of measurement of the total pressure by means of a radial Pitot rake rotating together with the vanes, the structure was investigated of the losses in the space between the rotating vanes and certain quantitative data were obtained which characterise the total magnitude of the complete pressure loss as well as the distribution of the losses along the radius within a wide range of operating regimes. The work was performed on an axial compressor of 600 mm outer diameter, 300 mm inner diameter, delivering air in an axial direction. The vane

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Experimental Determination of the Pressure Loss in the Rotating Vanes of Axial Compressors

profile was altered to give constant circulation along the radius; full details are given of the vane profile. Measurements of total head were made, using a Pitot rake rotating with the vanes and capable of measuring pressure at 18 different radial positions simultaneously, i.e. covering the space between the roots of the blades and the casing. Insufficient detail is given of the method of measurement, manometer connections etc. The equipment allows a complete picture of the total pressure in the region between the blades to be built up and the measurements are expressed in a non-dimensional form. $\Delta p_0 = p_{01} - p_{02}$ is the total pressure in front of the vane in relative motion; p_{02} is the total pressure behind the vane.

$$\Delta h = \Delta p_0 / \rho u_R^2 \qquad (2)$$

where ρ is the air density, u_R is the circumferential speed at the outer radius of the wheel; the mean value

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of the loss coefficient at a given radius, ΔH can be determined by means of the following equation:

$$\Delta H = \frac{1}{\varphi_0} \int_0^{\varphi_0} \Delta h(\varphi) d\varphi \quad \left(\varphi_0 = \frac{2\pi}{z} k \right) \qquad (3)$$

where k is the number of spaces between vanes. Thus, the pressure loss coefficient for all radii for any working condition is given by:

$$\sum \Delta H = \frac{1}{J} \int_{r'_0}^{1} \Delta H (r') c_a'(r') r' dr' \ ; \quad c_a' = \frac{c_a}{u_R}$$

where c_a is the absolute flow velocity in the vane. Eq (5) expresses the flow rate coefficient c_{a0}' and for a series of c_{a0}' values the theoretical head H_T is calculated and also the coefficient of the total head H. The Reynolds number, based on the relative flow

SOV/24-59-1-9/35

Experimental Determination of the Pressure Loss in the Rotating Vanes of Axial Compressors

velocity in the wheel, is 2×10^5. Fig 2 shows the structure of the head loss Δh over the vanes at different radii, ranging from the vane tip to close to the root. There is much more variation in these extreme regions. Fig 3 shows polar plots of the head loss for different working conditions. Over most of the region Δh is practically zero but increases in the space between successive vanes due to profile loss and friction of air on blade surfaces. There is also some loss over the radial gap between the blade tip and the casing, while at the root section the pressure loss is not only due to friction of the air on the hub surface but also due to the two boundaries formed by the blades and the hub with the associated secondary flow losses. A brief discussion is given of the factors influencing this head loss, mainly concerned with the angle of attack of the blades and the boundary layer thickness. Fig 4 shows the variation of head loss with radius in different working conditions. In conclusion, an attempt is made to

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Experimental Determination of the Pressure Loss in the Rotating Vanes of Axial Compressors

divide up the losses which occur over the vane. Fig 5 shows the total $\sum\Delta H$ divided into the profile loss: 1) end flow and secondary flow loss; 2) output loss; 3) it is evident that the profile loss makes up 50 to 55% of the total. Fig 6 shows the efficiency variation with working conditions. There are 6 figures and 6 references of which 2 are Soviet, 1 English and 3 German.

SUBMITTED: 22nd August 1958

Card 5/5

SOV/179-59-2-5/40

AUTHOR: Ginevskiy, A. S. (Moscow)

TITLE: Turbulent Trail and Stream in a Vortex Flow with the Presence of a Longitudinal Pressure Gradient (Turbulentnyye sled i struya v sputnom potoke pri nalichii prodol'nogo gradiyenta davleniya)

PERIODICAL: Izvestiya Akademii nauk SSSR OTN, Mekhanika i mashinostroyeniye, 1959, Nr 2, pp 31-36 (USSR)

ABSTRACT: An effect of the pressure gradient on the trail in a flow around a rigid body in the aerodynamical tube is considerable (Fig 1a). Similarly, this effect can be noticeable in the case of a stream (Fig 1b). A method of calculation of the turbulence is described by the author, taking into account the longitudinal pressure gradient. The equation of turbulence in this trail or stream in this case will take a general form (1), where x and y - longitudinal and transverse co-ordinates respectively, u and v - mean components of the velocity along the axes x and y respectively, τ - tangent tension, ρ - density, p - pressure. The

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Turbulent Trail and Stream in a Vortex Flow with the Presence of a Longitudinal Pressure Gradient

distribution of the tangent tension is given by Eqs (2), (4) and (5). The last two expressions are substituted in the Eqs (6) and (7) which determine the velocity in the trail (or stream) and at the boundary respectively. The simultaneous solution of both equations gives the expression (8). To find the rate of an increase (or decrease) of the velocity (Fig 1), the formula (9) is derived for $u = U \mp u_1$ and $u_m = U \mp u_{1m}$. The velocity profile along the axis can be derived from Eq (7), which can be written in the forms Eqs (10) and (11). The latter can be integrated when the relation (12) is determined (δ' and δ'' – displacement and loss of impulse, respectively). Then the expressions (13) and (14) are obtained (V_∞ - velocity of inflow, δ''_∞ – loss of impulse behind the body). The coefficient of body resistance, Eq (16) (L – characteristic linear dimension), when substituted in the Eq (11), gives the final differential equation (17). This equation can be integrated in the case of the longitudinal gradient when U = const , while

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Turbulent Trail and Stream in a Vortex Flow with the Presence of a Longitudinal Pressure Gradient

the relationship of δ and $u_1 m^0$ can be defined as Eq (18) ($Z_1 = c_x L$ for trail, $Z_2 = I/1/2 \rho U^2$ for stream), which, when substituted into Eq (17) gives the usual differential equation (19). In the case of the trail, the expression (20) can be derived from Eq (19). The value of β is found experimentally. It can be determined from Eqs (21) and (22) for the trail as $\beta = I/16 \approx 0.197$ and from Eqs (23) and (24) for the stream as $\beta = 0.035 \pi = 0.11$. The determination of the profile velocity can be simplified when Eq (25) is applied (n - experimental constant), which, together with Eq (4), will give the relationship (26). Fig 2 illustrates the comparison of the results obtained from the various formulae: the curves 1, 2, 3 were calculated from Eqs (9), (26) and (28); 4 and 5 - experimental points for the plane turbulent trail and stream, respectively, 6 and 7 - experimental points for the coaxial turbulent trail and stream, respectively. The difference between the theoretical and

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SOV/179-59-2-5/40

Turbulent Trail and Stream in a Vortex Flow with the Presence of a Longitudinal Pressure Gradient

experimental determination of the velocity profile can be improved by a more exact approximation of the tangent tension, e.g. the Eq (28) can be used for the conditions (3) and τ expressed by Eq (27). There are 2 figures and 9 references, of which 7 are Soviet and 2 German.

SUBMITTED: August 22, 1958.

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SOV/179-59-3-40/45

AUTHORS: Ginevskiy, A. S. and Fedyayevskiy, K. K. (Moscow)

TITLE: Some Laws of the Unsteady, Forward Motion of Bodies in a Viscous Liquid (Nekotoryye zakonomernosti pri neustanovivshemsya postupatel'nom dvizhenii tel v vyazkoy zhidkosti)

PERIODICAL: Izvestiya Akademii nauk SSSR, Otdeleniye tekhnicheskikh nauk, Mekhanika i mashinostroyeniye, 1959, Nr 3, pp 207-209 (USSR)

ABSTRACT: The interaction force X between a body and a liquid can be defined as Eq (1), where ρ, μ - density and viscosity of a liquid respectively, g - gravity, V and dV/dt - velocity and acceleration of a body, L - characteristic linear magnitude, N_{Re} - Reynold's number, N_{Fr} - Freude number, N_W - dimensionless acceleration characterizing the relationship of forces of inertia, Eq (2). The actual relationship of $f_1(N_{Re}, N_{Fr}, N_W$ and $f_2(N_W)$ is determined by the shape of a body and by the character of the motion and flow. In the case of laminar motion of a sphere in a viscous liquid, the coefficient of resistance can be shown as Eq (3) or as Eq (5) in a general case (L - radius of the

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Some Laws of the Unsteady, Forward Motion of Bodies in a Viscous Liquid

sphere). The motion in this case depends on the initial condition, Eq (4), where the ratio N_{Re}/N_W can be found from Eq (6). Experiments were carried out by the Leningrad Ship Building Institute, where Δc_x was investigated in relation to the parameters N_{Re} and N_W. Fig 1 illustrates the results obtained for $\Delta c_x(N_{Re})$ and $\Delta c_x(N_W)$ determined for the types of motion characterized by the load P. Fig 2 shows the experimental points of $\Delta c_x(N_{Re}/N_W)$. Fig 3 represents the results of the experiments for various velocities and accelerations. It is evident from the experiments that in order to determine the dynamic properties of similar motions of a body in a viscous liquid, the ratio N_{Re}/N_W or N_W should be considered in addition to N_{Re} and N_{Fr}. There are 3 figures and 5 references, 2 of which are Soviet, 2 English and 1 Italian.

SUBMITTED: November 12, 1958

Card 2/2

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515120001-6"

GINEVSKIY, A.S.; SOLODKIN, Ye.Ye.

Aerodynamic characteristics of the entrance region of a ring-shaped pipe with turbulent flow in the boundary layer. Prom. aerodin. no.12: 155-167 '59. (MIRA 13:1)

(Pipe--Aerodynamics)

SOLODKIN, Ye.Ye.; GINEVSKIY, A.S.

Effect of initial unsteadiness in the flow on characteristics of diffusion channels. Prom. aerodin. no.12:168-180 '59.
(MIRA 13:1)

(Fluid dynamics)

GINEVSKIY, A.S.

Integral methods for solving problems of a free turbulence.
Prom.aerodin. no.15:47-71 '59. (MIRA 13:8)
(Turbulence)

AVDUYEVSKIY, Vsevolod Sergeyevich, dotsent; **DANILOV**, Yuriy Ivanovich, dotsent; **KOSHKIN**, Valentin Konstantinovich, prof.; **KUTYRIN**, Igor' Nikolayevich, dotsent; **MIKHAYLOVA**, Militsa Mitrofanovna, dotsent; **MIKHEYEV**, Yuriy Sergeyevich, dotsent; **SERGEL'**, Oleg Sergeyevich, dotsent; GINEVSKIY, A.S., kand.tekhn.nauk, red.; **SHEKHTMAN**, E.A., izdat.red.; ROZHIN, V.P., tekhn.red.

[Fundamentals of heat transfer in aeronautical and rocket equipment] Osnovy teploperedachi v aviatsionnoi i raketnoi tekhnike. Pod obshchei red. V.K.Koshkina. Moskva, Gos. nauchno-tekhn.izd-vo Oborongiz, 1960. 388 p. (MIRA 14:4)

(Rockets (Aeronautics)) (Airplanes)
(Artificial satellites) (Heat--Transmission)

PHASE I BOOK EXPLOITATION SOV/4820

Ushakov, Konstantin Andreyevich, Professor, Iosif Veniamenovich Brusilovskiy, and Aleksandr Romanovich Bushel'

Aerodinamika osevykh ventilyatorov i elementy ikh konstruktsiy (Aerodynamics of Axial-Flow Fans and Elements of Their Structure) Moscow, Gosgortekhizdat, 1960. 421 p. Errata slip inserted. 2,000 copies printed.

Ed.: Konstantin Andreyevich Ushakov, Professor; Ed. of Publishing House: G.B. D'yakova; Tech. Eds.: S.Ya. Shklyar, and Z.A. Korovenkova.

PURPOSE: This book is intended for workers of scientific research institutes and planning and design institutes of the ore-mining industry, and may be used by the personnel of other organizations concerned with the design and operation of axial-flow fans.

COVERAGE: The authors describe a modern method of the aerodynamic calculation of axial-flow fans and critically review the design of mine-ventilating machines. Their method of profiling bladed rings is said to be a synthesis of the theory of two-dimensional cascades of airfoils, testing data, and of the generalized results of various systematic experimental investigations carried out by the

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authors at the Tsentral'nyy aero-gidrodinamicheskiy institut (Central Aerohydrodynamical Institute). Individual chapters were written as follows: K.A. Ushakov, Introduction, Sec. 3 and 6 of Ch. III, Sec. 4 of Ch. VI, and together with A.R. Bushel', Ch. XII (except Sec. 3); I.V. Brusilovskiy, Ch. I (except Sec. 4), Ch. II, Ch. III (except Sec. 2,3, and 6), Ch. IV, V, VI (except Sec. 4), Sec. 3 and 4 of Ch. VII, Ch. VIII (except Sec. 4 and 5), and Ch. X. (except Sec. 3); A.R. Bushel', Ch. VII (except Sec. 3 and 4), Sec. 4 and 5 of Ch. VIII, Sec. 3 of Ch. X, Sec. 3 of Ch. XII, Ch. XIII and Ch. XIV; A.S. Ginevskiy, Sec. 4 of Ch. I; A.A. Dzidziguri, Ch. IX; I.O. Kersten, Ch. XI; A.V. Kolesnikov, Sec. 2 of Ch. III. No personalities are mentioned. There are 107 references: 87 Soviet, 11 German, and 9 English.

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PART I. AERODYNAMICS OF AXIAL-FLOW FANS

Ch. II. Theory of Axial-Flow Fans

Ch. III. Influence of Air Viscosity. Efficiency Coefficient. Fan's Characteristics

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GINEVSKY, A.S.

(11)

Report presented at the Conference on Heat and Transfer.
Minsk, USSR, 5-10 June 61.

FM-2552
54

253. S. I. [illegible], T. L. Perelman, Diffusion of Charged Particles in the Presence of Recombination
254. T. L. Perelman, On Heat Transfer in Laminar Flow in the Inlet Part of a Tube
255. I. G. Portnov, Solution of Some Problems With Phase Conversions by Operational Calculus
256. L. M. Simuni, Numerical Solution of Some Problems of Motion of a Liquid with Variable Viscosity
257. S. L. Detkov, On Conformal Transformation of Radiations Fields in Vacuum
258. Yu. A. Samoylovich, Calculation of Heating of Rectangular Bodies According to Technological Conditions
259. I. R. Mikk, Emissivity of Cylindrical Radiating Volume
260. V. N. Timofeev, V. M. Malkin, F. R. Shklyar, Theory of Regeneration Heat Exchanger Design
261. E. I. Taubman, On Calculation Method of Heat Transfer Through the Wall at Change of the Aggregation State of One or Both Heat Agents
262. A. V. Kavaderov, Yu. A. Samoilovich, V. G. Kalugin, Regularities of Heating of the Simplest Shapes by Radiation and Convection
263. G. L. Babukha, Peculiarities and Some Results of Thermal Treatment Investigations of Polydispersed Fluidized Materials
264. L. S. Klyachko, Heat and Mass Transfer at Joint Free and Forced Convection
265. Yu. V. Lapin, Heat and Mass Transfer at Turbulent Flow of Compressible Gas at Foreign Substance Supply
266. A. S. Ginevskiy, E. E. Solodkin, Influence of Transversal Curvature of the Surface on Heat Transfer Rate of Axially [illegible] Bodies and Ducts
267. A. A. Gryaznov, On the Heat and Mass Transfer Theory at Convective Motion of Liquid
268. V. I. Subbotin, M. Kh. Ibragimov, E. V. Nomofilov, Measurement of Temperature Turbulent Pulsations in a Liquid Flow
269. A. A. Pomerantsev, On the Theory of Fusion and Burning of a Body (The Stephan Problem)

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515120001-6"

S/632/61/000/020/001/008
D234/D308

AUTHORS: Dovzhik, S. A. and Ginevskiy, A. S.

TITLE: Pressure losses in blade rims of an axial infrasonic compressor

SOURCE: Moscow. Tsentral'nyy aero-gidrodinamicheskiy institut, Promyshlennaya aerodinamika. no. 20, 1961. Osevyye dozvukovyye kompressory statsionarnogo tipa, 5-56

TEXT: The results are given of an experimental investigation of pressure losses in the inlet (directing) device and in the working wheel of the compressor. The structure of pressure losses was studied at stream velocities $c_a = 40 - 60$ m/sec; the values of loss coefficients for the directing device were plotted against the radius, the axial velocity and the Re number; the power coefficient and the full pressure coefficient of the working wheel against the radius and the flow coefficient. On the basis of these results formulas determining separate components of the losses are impro-

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Pressure losses in ...

S/632/61/000/020/001/008
D234/D308

ved and more accurate values are found for coefficients occurring there. A method of constructing a pressure characteristic of a stage is described; characteristics of several single-stage compressors determined with its aid are compared with experimental characteristics. It is concluded that the method is suitable as a first approximation. A. I. Morozov and several others are mentioned for their participation in the study, G. Yu. Stepanov for discussion, A. D. Kochergin and Yu. N. Kurzanov for designing part of the equipment. There are 41 figures, 4 tables and 23 references.

Card 2/2

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515120001-6"

S/262/62/000/008/005/022
1007/1207

AUTHORS: Blokh, E. L. and Ginevskiy, A. S.

TITLE: The laminar flow around a cascade of circles and its use in solving hydrodynamic problems

PERIODICAL: Referativnyy zhurnal, otdel'nyy vypusk. 42. Silovyye ustanovki, no. 8, 1962, 22, abstract 42.8.121. Collection "Prom. aerodinamika", Moscow, Oborongiz, no. 20, 1961, 89-136

TEXT: A tentative solution is given for the case of flow around a cascade of near-circles; the deviation of the actual resulting contour from an ideal circle does not exceed 0.6% of the radius, even for the limiting case when $q = 1$ (q is the ratio of the circle diameter to the distance between the adjacent circles); for $q = 0.8$ the deviation is less than 0.1%. The authors also give an exact solution for the flow around a limiting cascade of circles which permits the accuracy of the above tentative method to be estimated for the whole range of variation of the ratio q. With $q = 1$, the error in determining the flow velocity is 1.63%. There are 23 figures and 15 tables.

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[Abstracter's note: Complete translation.]

Card 1/1

S/632/61/000/020/005/008
D234/D308

26.2120

AUTHORS: Belotserkovskiy, S. M., Ginevskiy, A. S. and Polonskiy, Ya. Ye.

TITLE: Aerodynamical forces acting on the profile grating in non-stationary flow

SOURCE: Moscow. Tsentral'nyy aero-gidrodinamicheskiy institut. Promyshlennaya aerodinamika. no. 20, 1961. Osevyye dozvukovyye kompressory statsionarnogo tipa, 137-167

TEXT: A method of computing the aerodynamical characteristics, being a generalization of the method offered by one of the authors in a previous publication, is described. The general case is considered in which the profiles vibrate in an arbitrary (but equal) manner and are deformed at the same time. The only assumptions made are those on which the linear theory is based. The solution is constructed as a linear combination of vortex chains of arbitrary stagger and step; the intensity of associated vortexes and the basic kinematic parameters of the grating varying harmonic-

√B

Card 1/2

ally with time. Formulas for the forces and moments acting on the grating are derived and the method of numerical computation on an electronic computer is described. Graphs of characteristics are given for a wide range of grating parameters and Strukhal's number /‾Abstracter's note: Name transliterated_7 for a grating consisting of plates. There are 22 figures.

✓B

S/632/61/000/020/007/008
D234/D308

AUTHORS: Ginevskiy, A. S. and Solodkin, Ye. Ye.

TITLE: Hydraulic resistance of ring channels

SOURCE: Moscow. Tsentral'nyy aero-gidrodinamicheskiy institut. Promyshlennaya aerodinamika, no. 20, 1961. Osevyye dozvukovyye kompressory statsionarnogo tipa, 202-215

TEXT: The authors give an approximate solution of the problem of stabilized turbulent flow in pipes having ring-shaped cross-section, for arbitrary values of the ratio of external to internal radius. Well-known solutions for a circular pipe and plane pipe are obtained as limiting cases. Values of empirical constants are determined. The agreement with experimental data is found to be satisfactory. The opinion that data processing with the aid of hydraulic diameter eliminates the effect of the shape of cross-section, is proved to be incorrect. There are 12 figures.

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APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515120001-6"

40771

S/124/62/000/009/009/026
A001/A101

AUTHORS: Dovzhik, S. A., Ginevskiy, A. S.

TITLE: Pressure losses in blade crown of the axial subsonic compressor

PERIODICAL: Referativnyy zhurnal, Mekhanika, no. 9, 1962, 35, abstract 9B220 (In collection: "Prom. aerodinamika, no. 20", Moscow, Oborongiz, 1961, 5 - 56)

TEXT: The authors present the results of an experimental investigation of losses in the blade crown of the guidance apparatus and impeller; the investigation was carried out on an experimental compressor at low subsonic velocities. Radial and pitch distribution of losses was investigated for several variants of blading of the guidance apparatus and impeller. Profile losses, secondary and end losses are analyzed. The published empirical formulae for determining losses of various types are critically reviewed and compared with experimental data available. The following formula for determining the sum of the end and secondary losses in the guidance apparatus and impeller is recommended at conditions below separation:

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APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515120001-6"

Pressure losses in blade crown of...

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A001/A101

$$\zeta_k + \zeta_b = \frac{1}{\bar{h}} m_k + m_b c_y^2 \tau) \frac{\cos^2 \beta_1}{\cos^3 \beta_m}$$

where $\bar{h}$ is blade elongation differing from Howell's formula by the values of coefficients m_k and m_b (it is recommended $m_b = 0.016 \div 0.019$ independent of R and $m_k = 0.016 \div 0.022$ for conditions self-simulating in R; a more precise selection of m_k depends on additional conditions). The material obtained enables the authors to propose a method of approximate determination of the pressure characteristic of the stage, which agrees satisfactorily with results of testing stages of axial compressors of various types at conditions below separation. Numerous graphs of experimental results are presented. There are 23 references.

N. A. Kolokol'tsov

[Abstracter's note: Complete translation]

Card 2/2

BLOKH, E.L.; GINEVSKIY, A.S.

Free from eddies flow about a circular cascade and the use of this flow in calculating fluid-dynamic cascades. Prom.aerodin. no.20:89-136 '61. (MIRA 14:12)

(Cascades (Fluid dynamics))

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515120001-6"

94 4200

S/262/62/000/011/013/030
I007/I252

AUTHORS Belotserkovskiy, S. M., Ginevskiy, A. S. and Polonskiy, Ya. Ye.

TITLE The effect of aerodynamic forces on a cascade under nonsteady flow

PERIODICAL Referativnyy zhurnal, otdel'nyy vypusk. 42. Silovyye ustanovki, no. 11, 1962, 37, abstract 42.11.175. (In collection Prom. aerodynamika, M., Oborongiz, no. 20, 1961, 137–167)

TEXT The principles are outlined of a method for computing the aerodynamic characteristics of a flat-plate cascade. The general case is described of spontaneous vibrations of the cascade about a certain mean position. To obtain the nonsteady aerodynamical characteristics of the cascade, dimensionless functions were determined for the components of the inductive velocities of adjacent vortices. The boundary conditions in the problem under consideration are equality to zero of the normal component of relative velocity at each point of the profile. For an approximate solution the vortex layer, continuously distributed over the profile, is replaced by a number of adjacent vortices. The procedure for calculating the cascade on the "Strela" (Arrow) electronic digital computer is described. The required number of adjacent vortices is dictated by the requirements of computational accuracy. Solution of one variant of the problem takes about 5 minutes. Dependence of the coefficients of rotational derivatives on the spacing and depth of the cascade is shown.

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The effect of

S/262/62/000/011/013/030
I007/I252

and a marked discrepancy is noted between these results and the data for a single profile. It is also noted that for a spacing factor above 0.5, these coefficients are practically independent of the Strouhal number.

[Abstracter's note: Complete translation.]

Card 2/2

43167
S/124/62/000/008/009/030
I006/I242

AUTHORS: Belotserkovskiy, S.M., Ginevskiy, A.S., and Polonskiy, Ya.Ye.

TITLE: Aerodynamic forces acting on a net of profiles in non steady flow

PERIODICAL: Referativnny zhurnal, Mekhanika, no.8, 1962, 29, abstract 8B176. (In collection: Prom. aerodinamika, no.20, M., Oborongiz, 1961, 137-167)

TEXT: Incompressible nonviscous flow past a net of thin profiles (plates) is considered. The profiles execute oscillations with equal phase, and can be deformed simultaneously. Each profile is replaced by a system of continuously distributed

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S/124/62/000/008/009/030
I006/I242

Aerodynamic forces acting ...

vortices with a time-dependent intensity. In the customary linear framework of the problem it is assumed that the vortex sheet leaving the profile maintains an invariable position with respect to the oscillating net. The problem is solved numerically, and for this purpose the continuous vortex sheet along the profile contour is replaced by a discreet number of joined vortices. The determination of the cirulation amplitude is reduced to the solution of a system of linear algebraic equations. The equation coefficients are functions of the net parameters and of the Strouhall number. The coefficients of lift and moment of the profile are determined by the formulae

$$c_y = c_{y00} + c_y^{\alpha}\alpha + c_y^{\dot\alpha}\dot\alpha + c_y^{\omega}\omega + c_y^{\dot\omega}\dot\omega + c_y^{\dot\Delta}\dot\Delta + c_y^{\Delta}\Delta$$
$$m_z = m_{z00} + m_z^{\alpha}\alpha + m_z^{\dot\alpha}\dot\alpha + m_z^{\omega}\omega + m_z^{\dot\omega}\dot\omega + m_z^{\Delta}\Delta + m_z^{\dot\Delta}\dot\Delta,$$

where c_{y00} and m_{z00} - the coefficient of lift and the moment

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APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515120001-6"

S/124/62/000/008/009/030
I006/I242

Aerodynamic forces acting...

corresponding to steady flow past the net, respectively. The other terms contain coefficients of rotation derivatives corres- ponding to the rate of change of angle of attack, $\dot{\alpha}$, the profile rotation, ω, and its deformation, $\dot{\Delta}$. Special cases of identical pure rotational oscillations and pure translational oscillations without deformation are considered. Formulae are obtained, connec- ting the amplitudes of the lift and moment coefficients c_y^* and m_z^* and the phase shifts ε_1, and ε_2 with the coefficients of rotation derivatives. The change of the angle of attack, $\Delta\alpha_\omega$, under the influence of a chain of initial vortices in a quasi- steady case of purely translational motion of the profiles is determined. A numerical calculation of aerodynamic characteristics of a net of plates is performed on the electronic digital computer "Strela" according to the formulas obtained, for values of consis- tency τ = b/t (b- chord, t- pitch of the net) of 0.25, 0.5, 1.0, 1.5, 2.0 and Strouhall numbers q = 0, 0.5, 1.0, 1.5, 2.0 and

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515120001-6"

S/124/62/000/008/009/030
I006/I242

Aerodynamic forces acting...

stagger angle β in the range 0 - 60°. For $\tau = 0$ the resultant curves coincide with curves for a single oscillating plate. It is shown that the coefficients of rotation derivatives of the profile in the net are essentially different from the coefficients of a single profile and at low consistencies they depend strongly upon the Strouhall number. All the coefficients of forces and moment at $\tau > 0.5$ are practically independent of the Strouhall number. The considered coefficients of rotational derivatives are practically independent of the angle of attack: $\alpha = 0 - 10°$. The phase shift of the lift coefficient ε_1 attains values of the order of 20 -50° at Strouhall numbers $q = 1 - 2$ and $\tau > 0.5$, whereas the moment coefficient phase shift ε_2 is small. At $q = 0$, $\varepsilon_1 = \varepsilon_2 = 0$.

[Abstracter's note: complete translation.]

Card 4/4

GINEVSKIY, A.S.; SOLODKIN, Ye.Ye.

Hydraulic resistance of annular channels. Prom.aerodin. no.20: 202-215 '61. (MIRA 14:12)

(Pipe--Hydrodynamics)

BELOTSERKOVSKIY, Sergey Mikhaylovich; GINEVSKIY, Aron Semenovich;
POLONSKIY, Yakov Yefimovich; SUVOROVA, I.A., red.; PUKHLIKOVA,
N.A., tekhn.red.

[Hydrodynamic theory of cascades; aerodynamic power and moment characteristics of cascades of thin profiles] Gidrodinamicheskaia teoriia reshetok; silovye i momentnye aerodinamicheskie kharakteristiki reshetok tonkikh profilei. Moskva, Gos.nauchno-tekhn. izd-vo Oborongiz, 1962. 124 p. (Promyshlennaia aerodinamika, no.22). (MIRA 15:8)

(Cascades (Fluid dynamics))

FEODOS'YEV, V.I., doktor tekhn. nauk, prof., red.; GINEVSKIY, A.S., kand. tekhn. nauk, red.; KURBAKOVA, I.P., red. izd-va; NOVIK, A.Ya., tekhn. red.

[Some problems in mechanics]Nekotorye voprosy mekhaniki; sbornik statei. Moskva, Oborongiz, 1962. 203 p. (MIRA 15:12)
(Mechanics)

SHEYNIN, Viktor Mikhaylovich; [illegible], kand. tekhn.nauk, retsenzent; GALITSKIY, Iu.V., inzh., retsenzent; GINEVSKIY, A.S., kand. tekhn. nauk, red.; MOROZOVA, P.B., red.izd-va; ORESHKINA, V.I., tekhn. red.

[Weight and transportation efficiency of passenger planes] Vesovaia i transportnaia effektivnost' passazhirskikh samoletov. Moskva, Oborongiz, 1962. 362 p. (MIRA 16:10)
(Airplanes)

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515120001-6"

GINEVSKIY, A.S.

Turbulent nonisothermal jet flows of a compressed gas. Prom.aerodin. no.23: 11-65 '62. (MIRA 16:4)
(Jets—Fluid dynamics) (Turbulence)

GINEVSKIY, A.S.

Radial slot jet flowing out from an annylar source with a finite diameter.
Prom.aerodin. no.23:72-79 '62. (MI:A 16:4)
(Jets--Fluid dynamics)

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515120001-6"

GINEVSKIY, A.S.

Turbulent jet flows with return currents of the fluid. Prom.aerodin. no.23:80-98 '62. (MIRA 16:4)
(Jets--Fluid dynamics) (Turbulence)

ACCESSION NR: AT3002066 S/2632/62/000/023/0107/0118

AUTHORS: Ilizarova, L. I.; Ginevskiy, A. S.

TITLE: Experimental investigation of a jet in countercurrent flow

SOURCE: Moscow. Tsentral'nyy aero-gidrodinamicheskiy institut. Promyshlennaya aerodinamika, no. 23, 1962. Struynyye techeniya, 107-118

TOPIC TAGS: aerodynamics, hydrodynamics, gas dynamics, fluid dynamics, jet, jet flow, countercurrent flow, counterflow, incompressible flow, Pitot-Prandtl tube, wind-tunnel test, null reading, null method, null-reading method, dynamic-pressure head, static head

ABSTRACT: The paper reports the results of an experimental investigation of the aerodynamic characteristics of an axially-symmetrical jet in a countercurrent flow within a numerical range of the parameter m (ratio of the free-flow countervelocity divided by the primary-jet velocity at the nozzle exit) of from 0 to 0.4. Velocity (V) and pressure (P) profiles are obtained in the "initial" mixing region (surrounding the central core of the jet) and the "main" mixing region (farther downstream) of such a jet, also the dependence of the lengths of these regions on the parameter m. The experiments were performed in a closed wind tunnel with an open working

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APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515120001-6"

ACCESSION NR: AT3002066

section (440-mm diam). Velocities from 13 to 14 m/sec were employed. The jet nozzle (10 and 15 mm diam) was carefully aligned with the direction of the local free flow. Jet velocity: 120-150 m/sec. Three types of Pitot-Prandtl tubes with 3-component heads and T-shaped heads were developed and employed to explore the complex flow in the mixing sheath between the counterflowing jet-core and wind-tunnel flows. The various types of head employed are described and pictured. A disk-shaped static head is also described and depicted. The pressures and magnitudes and directions of the local velocities were measured by a single head which was transported and positioned by a precision coordinate-locator device. All measurements were done by the null method, that is, all readings were performed by equalizing the pressures in the two branch tubes of a U-shaped manometer. The results of the measurements are portrayed graphically, and it is shown how the length of the initial region of the jet is determined as a function of the ratio m, also the length of the "torch," which is the sum of the lengths of the initial and the main mixing regions of the jet. Orig. art. has 12 figs., 1 tbl., and 1 eq.

ASSOCIATION: none

SUBMITTED:	00	DATE ACQ:	01May63	ENCL:	00
SUB CODE:	AI	NO REF SOV:	003	OTHER:	000

Card 2/2

GINEVSKIY, A.S.; MOROZOV, A.I.

Effect of the radial and circumferential irregularity of the flow on characteristics of stages of an axial-flow compressor. Prom.-aerodin. no.24:63-73 '62. (MIRA 16:7)

(Compressors--Aerodynamics)

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515120001-6"

GINEVSKIY, A.S. (Moskva); SOLODKIN, Ye.Ye. (Moskva)

Effect of the transversal surface curvature on the characteristics of an isothermal axisymmetric turbulent boundary layer of a compressed gas. Izv.AN SSSR.Otd.tekh.nauk.Mekh.i mashinostr. no.1:99-110 Ja-F '63. (MIRA 16:2)

(Boundary layer)

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515120001-6"

GINEVSKIY, A.S. (Moskva)

Approximate motion equations in problems of the theory of turbulent jets. Izv.AN SSSR.Mekh. i mashinostr. no.5:134-140 S-O '63.
(MIRA 16:12)

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515120001-6"

GORLIN, Samuil Markovich; SLEZINGER, Isaak Isayevich; GINEVSKIY, A.S., red.

[Aeromechanical measurements; methods and instruments] Aeromekhanicheskie izmereniia; metody i pribory. Moskva, Izd-vo "Nauka," 1964. 720 p. (MIRA 17:8)

RAKHMATULIN, [illegible]
[illegible] [illegible] [illegible]
[illegible] [illegible] prof.,
[illegible] [illegible] red.

([illegible]
[illegible])

[illegible]

ACCESSION NR: [illegible] S/0170/[illegible]/006/010/[illegible]

AUTHOR: [illegible]

TITLE: [illegible] of hydraulic [illegible] in channels with and with-out flow separation

SOURCE: [illegible]

TOPIC TAGS: hydraulic [illegible] flow separation, [illegible]

ABSTRACT: The author [illegible] to the calculation of the [illegible]

L 11830-66 EWT(1)/EWP(m)/FCS(k)/EWA(1)/EWA(d) GS

ACC NR: AT6001364 SOURCE CODE: UR/0000/65/000/000/0189/0202

AUTHOR: Solodkin, Ye. Yd. (Moscow); Ginevskiy, A. S. (Moscow)

14,55 44,55

64

B+1

ORG: None

1,55

TITLE: Turbulent nonisothermal flow of a viscous compressible gas in the inlet sections of axisymmetric and flat expanding channels with a null pressure gradient

SOURCE: Teplo- i massoperenos. t. 1: Konvektivnyy teploobmen v odnorodnoy srede (Heat and mass transfer. v. 1: Convective heat exchange in an homogeneous medium). Minsk, Nauka i tekhnika, 1965, 189-202

TOPIC TAGS: fluid flow, hydrodynamics, friction coefficient, boundary layer theory

ABSTRACT: In the inlet section of a channel the velocity, the temperature, the Mach number, and other flow parameters are distributed uniformly over the channel cross section. As the distance from the inlet section increases, a boundary layer arises due to the effect of viscous forces on the walls of the channel and there is an isentropic flow core

ACC NR: AT6001364

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only within the boundary layer. It follows that the velocity, temperature, Mach number, and other flow parameters remain constant across the channel in the flow core. Flow in the boundary layer is assumed to be turbulent. The article proposes to solve the given problem taking into account the effect of the transverse curvature of the surface on the axisymmetrical turbulent boundary layer. There follows an extended mathematical development based on the foregoing assumptions. Results of the calculations are exhibited in the form of curves showing the change in the local coefficient of friction resistance along the axis, the length of the initial section of the channel under various conditions, and change in the local heat transfer coefficient along the axis. Orig. art. has: 30 formulas, 6 figures.

SUB CODE: 20/ SUBM DATE: 31Aug65/ ORIG REF: 003/ OTH REF: 000

jw

Card 2/2

L 24249-66 EWT(1)/EWP(m)/ETC(f)/EPF(n)-2/EWG(m)/EWA(d)/EWP(1)/T/ETC(m)-6/EWA(1) 75

ACC NR: AT6006924 SOURCE CODE: UR/0000/65/000/000/0377/0391 B+1

EWT(m) BB/WW/GS/RM

AUTHOR: Ginevskiy, A. S.

ORG: none

TITLE: Heat and mass transfer in a nonisothermal turbulent gas jet of variable composition in a co-directional stream 21

SOURCE: Teplo- i massoperenos. t. II: Teplo- i massoperenos pri vzaimodeystvii tel s potokami zhidkostey i gazov (Heat and mass transfer. v. 2: Heat and mass transfer in the interaction of bodies with liquid and gas flows). Minsk, Nauka i tekhnika, 1965, 377-391

TOPIC TAGS: heat transfer, mass transfer, turbulent jet, gas dynamics, turbulent boundary layer, gas jet

ABSTRACT: The mathematical development starts from the differential equations of continuity, momentum, energy, and mass transfer for averaged steady state plane or axisymmetric isobaric motion of a two component gas mixture in a turbulent boundary layer:

$$\frac{\partial}{\partial x}(\rho u y^j) + \frac{\partial}{\partial y}(\rho v_1 y^j) = 0; \qquad (1)$$

$$\rho u \frac{\partial u}{\partial x} + \rho v_1 \frac{\partial u}{\partial y} = \frac{1}{y^j} \frac{\partial (\tau y^j)}{\partial y}; \qquad (2)$$

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0

$$\rho u \frac{\partial H}{\partial x} + \rho v_1 \frac{\partial H}{\partial y} = \frac{1}{y^j} \frac{\partial}{\partial y} [(\sigma + \lambda) y^j]; \quad (3)$$

$$\rho u \frac{\partial z}{\partial x} + \rho v_1 \frac{\partial z}{\partial y} = \frac{1}{y^j} \frac{\partial (\gamma y^j)}{\partial y}. \quad (4)$$

Здесь

$$\tau = \varepsilon \frac{\partial u}{\partial y}, \quad \sigma = \frac{\varepsilon}{P_t} \frac{\partial}{\partial y} \left(h + P_t \frac{u^2}{2} \right),$$

$$\gamma = \rho D_t \frac{\partial z}{\partial y} = \frac{\varepsilon}{P_d} \frac{\partial z}{\partial y}, \quad h = c_p T, \quad (5)$$

$$\lambda = \frac{\varepsilon}{P_t} \left(\frac{P_t}{P_d} - 1 \right) (h_1 - h_2) \frac{\partial z}{\partial y}, \quad v_1 = v \left(1 + \frac{\overline{\rho' v'}}{\rho v} \right),$$

$$H = h + \frac{u^2}{2}, \quad P_t = \frac{\varepsilon c_p}{\lambda_t}, \quad P_d = \frac{\varepsilon}{\rho D_t},$$

x, y are coordinates of a rectangular (j = 0) or cylindrical (j = 1) coodinate system; u, v are the components of the velocity along the x and y axes; ρ is the density of the gas mixture; h is the heat content; H is the total heat content; z is the mass concentration of the substance of the jet or one of its components; D_t is the coefficient of

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APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515120001-6"

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reciprocal diffusion; ε is the coefficient of turbulent transfer; λ_t is the coefficient of turbulent heat conductivity; P_t is the turbulent Prandtl number; P_d is the diffusion Prandtl number; c_p is the specific heat capacity of the gas mixture at constant pressure; T is the absolute temperature. The remainder of the article is devoted to a mathematical solution of the above system of equations. The calculation method is said to be applicable to the solution of a wide range of problems in the theory of turbulent gas jets. Orig. art. has: 53 formulas and 5 figures.

SUB CODE: 20/ SUBM DATE: 09Nov65/ ORIG REF: 004

Card 3/3dda

L 46678-66 EWT(1)/EWP(m)

ACC NR: AP6020726 SOURCE CODE: UR/0421/66/000/003/0059/0067

AUTHOR: Ginevskiy, A. S. (Moscow)

57
B

ORG: none

TITLE: Calculation of the transition section of a turbulent jet

SOURCE: AN SSSR. Izvestiya. Mekhanika zhidkosti i gaza, no. 3, 1966, 59-67

TOPIC TAGS: turbulent jet, axisymmetric flow, transition flow, flow profile

ABSTRACT: An approximate calculation method is developed for the transition sections of plane and axisymmetric turbulent jets in a co-moving stream. It is shown why earlier methods, based on differentiation between the initial and final sections are not applicable in the transition (mixing) region. The velocity profiles obtained by this method in the transition region turn out to be the same for plane and axisymmetric jets, and can be used to calculate the variation of the jet parameters along the stream axis by using the set of integral equations connecting the angular momentum and the energy. Limiting parameters are defined under which the results coincide with the velocity profile of the main section of the turbulent jet. It is concluded that in first approximation the external boundary of the transition layer is straight and is a continuation of the outer boundary of the outer section. The method is then demonstrated to be suitable for a determination of continuous velocity-profile deformation in the transition region. Orig. art. has: 8 figures and 33 formulas.

SUB CODE: 20/ SUBM DATE: 01Mar65/ ORIG REF: 003/ OTH REF: 002

Card 1/1

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515120001-6"

L [illegible]

ACC NR: AP6030113 SOURCE CODE: UR/0421/66/000/004/0081/0088

AUTHOR: Ginevskiy, A. S. (Moscow); Ilizarova, L. I. (Moscow); Shubin, Yu. M. (Moscow)

ORG: none

TITLE: Investigation of the microstructure of a turbulent jet in a wake flow

SOURCE: AN SSSR. Izvestiya. Mekhanika zhidkosti i gaza, no. 4, 1966, 81-88

TOPIC TAGS: fluid mechanics, wake flow, turbulent jet, jet flow, wind tunnel, boundary layer equation

ABSTRACT: The microstructure of the main part of an axisymmetric turbulent jet in a
wake flow is investigated experimentally over a wide range of the wake parameter
$m = u_\delta/u_0$ (0.04, 0.21, 0.4, 0.52), where u_δ - is the velocity of wake flow and u_0 is
the mean velocity at the nozzle exit. Measurements were made with "Disa Elektronik"
apparatus (a constant-temperature anemometer), including two amplifiers and a
correlator. The velocity profiles of three components of fluctuating velocity and
Reynolds stress were measured in the main part of the jet. The values of the mean
velocity and two components of fluctuating velocity were measured at a large number
of points on the jet axis. The measured profiles of Reynolds stress are compared
with corresponding profiles calculated from an experimentally determined mean
velocity profile by means of turbulent boundary layer equations. The correlation

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ACC NR: AP6030113

coefficient of longitudinal components of fluctuating velocity in one section of the jet was measured for two values of m and the variation of the integral scale of turbulence across the jet was determined. The results obtained here illustrate the effect of the parameter m on the characteristics of a turbulent jet in wake flow. [AB]
Orig. art. has: 7 figures and 19 formulas.

SUB CODE: 20/ SUBM DATE: 27Feb65/ ORIG REF: 005/ OTH REF: 006/ ATD PRESS: 5074

Card 2/2 JS

L 07466-67 EWP(m)/EWT(l) FDN/WW/JW/WE

ACC NR: AT6034554 SOURCE CODE: UR/2632/66/000/027/0005/0030

60
60
B+1

AUTHOR: Ginevskiy, A. S. (Candidate of technical sciences)

ORG: none

TITLE: The method of integral relations in the theory of turbulent jet flows

SOURCE: Moscow. Tsentral'nyy aero-gidrodinamicheskiy institut. Promyshlennaya aerodinamika, no. 27, 1966. Struynyye techeniya (Jet streams), 5-30

TOPIC TAGS: turbulent flow, turbulent jet, turbulent mixing, approximation method, isothermal flow, boundary layer

ABSTRACT: An isothermal, turbulent, plane, axisymmetric jet is investigated using Karman-type integral methods. Both the initial and main flow of the jet are analyzed as the jet issues into a wake whose speed is either slower or faster than the jet speed. Also investigated are expanding and converging flows of a radial-slot type jet. The Golubev integral relation for the plane or axisymmetric jet is given by

$$\frac{d}{dx}\int_0^\delta \varrho u\left(u_\delta^{k+1}-u^{k+1}\right)y^j dy=k(k+1)\int_0^\delta \tau u^{k-1}\frac{\partial u}{\partial y}y^j dy.$$

$$(k=0,1,2,\ldots,\infty).$$

The analysis starts with a plane turbulent jet where the jet speed u_δ is either

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smaller or greater than the wake flow u_0. The length of the initial section is then calculated to be

$$\frac{\varkappa x_0}{\delta_0}=\pm\frac{A_1+A_2m+A_3m^2}{2a_4[(a_1-a_2)m+a_2](1-m)^2},$$

where A is a coefficient determined from the velocity profile

$$f(\eta_0)=1-6\eta_0^2+8\eta_0^3-3\eta_0^4,$$

$$a_1=\frac{2}{5},\quad a_2=\frac{2}{7},\quad a_3=\frac{166}{715},\quad a_4=\frac{48}{35}.$$

In the main flow, the same length parameter takes the form

$$\varkappa(\bar{x}-\bar{x}_0)=-\frac{1}{2a_4}\frac{1-m}{m^2}\left[F(\overline{\Delta u}_m)-F(1)\right],$$

which for m = 0 simplifies to

$$\frac{u_m}{u_0}=\left[1+\frac{4a_2a_4}{a_3}\varkappa(\bar{x}-\bar{x}_0)\right]^{-\frac{1}{2}}.$$

A similar analysis is made for the axisymmetric jet. The results are shown graphically as plots of velocity profiles in the jet and mixing boundaries along the jet axis. The analysis is then extended to a converging or diverging radial slot jet issuing from a nozzle with thickness $2\delta_0$ and diameter $2x_c$ (see Fig. 1). The governing integral relation for this case is given by

$$\frac{d}{dx}\left[x\int_0^\delta u^{k+2}dy\right]=-k(k+1)x\int_0^\delta\frac{\tau}{\varrho}u^{k-1}\frac{\partial u}{\partial y}dy.\quad (k=0,1,2,\ldots)$$

0

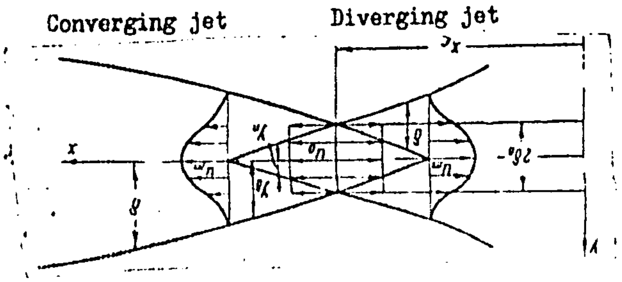

Fig. 1.

Once more the solutions are given for the initial and main parts of the flow, and the results are presented graphically. This analysis is shown to be directly related to the plane flow case with m = 0 through a Mangler-Stepanov transformation. A plot of u_m/u_0 versus x shows excellent agreement with experiments. The above analyses are then compared to a similar integral method of L. G. Loytsyanskiy where the governing equations are

$$\frac{d}{dx}\int_0^\delta u(u-u_1)\,dy=0,$$

$$\frac{d}{dx}\int_0^\delta u(u-u_1)\,y\,dy-\int_0^\delta v(u-u_1)\,dy=\nu_t(u_m-u_1).$$

The two approximate methods are then compared to the exact solution with the following

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result:

$$u_m = \alpha_1 \left(\frac{K^2}{\nu x}\right)^{1/3} \quad \text{at} \quad \frac{u_1}{u_{1m}} \to 0,$$

$$u_{1m} = \beta_1 \frac{K}{(\nu x u_1)^{1/2}} \quad \text{at} \quad \frac{u_1}{u_{1m}} \to 0.$$

	α_1	β_1
Golubev expression	0.442	0.286
Loytsyanskiy expression	0.434	0.280
Exact solution	0.454	0.282 .

A brief discussion is given showing how to extend the above integral methods to a turbulent jet which is nonisothermal, compressible, and has variable properties. Calculations of the above formulas were carried out by V. P. Kondakova and V. M. Arbekova. Orig. art. has: 110 equations, 12 figures, and 2 tables.

SUB CODE: 20/ SUBM DATE: none/ ORIG REF: 008/ OTH REF: 004 / ATD PRESS: 5104

L [illegible] EWT(1)/[illegible](m)/[illegible](m)

ACC NR: AT6034555 SOURCE CODE: UR/2652/66/000/027/0031/0054

AUTHOR: Ginevskiy, A. S. (Candidate of technical sciences)

41
B+1

ORG: none

TITLE: Turbulent nonisothermal jets of compressible gas with variable composition

SOURCE: Moscow. Tsentral'nyy aero-gidrodinamicheskiy institut. Promyshlennaya aerodinamika, no. 27, 1966. Struynyye techeniya (Jet streams), 31-54

TOPIC TAGS: turbulent flow, compressible flow, gas jet, temperature distribution, gas diffusion, boundary layer

ABSTRACT: A compressible, variable-composition turbulent jet is analyzed using the integral method. The analysis is divided into six parts with the following assumptions holding throughout: the flow is isobaric; the specific heat of each component in the jet is independent of the temperature; pressure and thermal diffusion are neglected; the density is determined from the Clapeyron equation; and there are no chemical reactions. Part one treats the plane nonisothermal jet in a wake with $Pr_t = Pr_d = 1$ at high velocities. The governing boundary layer equations consist of species and overall continuity equations, the momentum equation, and the energy equation. Using integral relations, the following equation is obtained for the flow along the jet axis

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$$\bar{x}-\bar{x}_0=\frac{1-m}{12\varkappa 0}\,\frac{\zeta_{r\delta}}{\zeta_{r0}}\int_1^{u_m/u_*}\frac{B}{F_\zeta\left(\frac{u_m}{u_0}-m\right)^4\psi(0)}\,\frac{u_m}{u_0}\,d\left(\frac{u_m}{u_0}\right).$$

In part two, the same problem is analyzed for the axisymmetric jet where the viscous stress is expressed by the polynomial,

$$\tau=\left[\varrho_m u_m u'_m-(\tau/y)_{y=0}\right]\delta\eta(1-\eta)^2$$

which, upon substitution into the governing equation and integration, yields

$$\bar{x}-\bar{x}_0=\frac{1}{24\varkappa}\left[\frac{(1-m)\zeta_{r\delta}}{20\zeta_{r0}}\right]^{1/2}\int_1^{u_m/u_*}\sqrt{\frac{\varrho_m\zeta_{rm}}{\zeta_{r\delta}\varrho_0}}\left(\frac{u_m}{u_0}-m\right)^{-3}\frac{u_m}{u_0}\,d\left(\frac{u_m}{u_0}\right).$$

Part three is the same as part one and two combined, except that the flow velocity is assumed to be very low. The results of the analysis are shown as velocity profile curves for various radial temperature distributions. In parts four through six the conditions Pr (turbulent and diffusional) equal unity are relaxed, and the viscous stress and thermal conductivity are expressed repectively by

$$\tau=\varrho_m u_m u'_m y\left(1-\frac{y}{\delta}\right)^2,$$

$$\sigma=\varrho_m u_m h'_m y\left(1-\frac{y}{\delta_T}\right)^2.$$

For c_p = const and small flow velocities, the following expressions are obtained for the velocity and temperature distributions

$$\overline{\Delta u}_m=\left(\frac{\delta_r}{\delta}\right)^2\frac{\frac{m}{1-m}\frac{b_1}{\overline{\Delta u}_m}+\int\limits_0^1 f(\eta)f(\eta_r)\eta_r d\eta_r}{\frac{m}{1-m}\frac{b_1}{\overline{\Delta u}_m}+b_2},$$

$$\overline{\Delta T}_m=\frac{\frac{11}{210}\mathrm{Pr}_t^3}{\frac{1}{10}\mathrm{Pr}_t^2-\frac{3}{28}\mathrm{Pr}_t+\frac{8}{105}\mathrm{Pr}_t^{1/2}-\frac{1}{60}}\overline{\Delta u}_m.$$

For a submerged jet, these results agree very well with experimental values for $\mathrm{Pr}_t \doteq 0.5$. The corresponding concentration profile is given by

$$\overline{\Delta z}_m=\frac{\frac{2}{7}\mathrm{Pr}_d^{5/2}}{\frac{2}{5}\mathrm{Pr}_d^2-\frac{8}{35}\mathrm{Pr}_d+\frac{1}{7}\mathrm{Pr}_d^{1/2}-\frac{1}{35}}\overline{\Delta u}_m$$

which also agrees with experimental measurements if $\mathrm{Pr}_d \doteq 0.5$. Orig. art. has: 135 equations, 8 figures, and 1 table.

SUB CODE: 20/ SUBM DATE: none/ ORIG REF: 008 / ATD PRESS: 5103

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515120001-6"

L 07467-67 EWP(m)/EWT(1) FDN/WW/JW/WE

ACC NR: AT6034556 SOURCE CODE: UR/2632/66/000/027/0055/0070

52

51

B+1

AUTHOR: Ginevskiy, A. S. (Candidate of technical sciences)

ORG: none

TITLE: Calculation of transverse velocities in the initial and main portions of turbulent jets in wake flow

SOURCE: Moscow. Tsentral'nyy aero-gidrodinamicheskiy institut. Promyshlennaya aerodinamika, no. 27, 1966. Struynyye techeniya (Jet streams), 55-70

TOPIC TAGS: wake flow, jet flow, plane flow, axisymmetric flow, turbulent flow, turbulent jet

ABSTRACT: Formulas are derived for the construction of the transverse velocity profiles for both the main and the initial portions of jets in wake flow. The formulas are derived on the basis of two approximation methods. The first uses boundary layer equations, and the second uses the fluid continuity equation with the condition of momentum conservation in transverse cross sections of the jet. The degree of approximation of both methods depends on the approximation expression for the longitudinal velocity profile used as the initial condition. Using the boundary layer equations, the transverse velocity profile of the main portion of a plane jet is given by

$$\frac{1}{12\varkappa}\frac{v}{u_{1m}}=\mp\left[\frac{m}{1-m}\frac{1}{\overline{\Delta u}_m}+(1+3\eta)(1-\eta)^3\right]\times$$

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$$\times \int_0^{\eta} \frac{(1-3\eta)(1-\eta)}{\left[\frac{m}{1-m}\frac{1}{\overline{\Delta u}_m} + (1+3\eta)(1-\eta)^3\right]^2} d\eta,$$

where

$$u = u_\delta \mp u_{1m} f(\eta), \quad f = 1 - 6\eta^2 + 8\eta^3 - 3\eta^4 = (1+3\eta)(1-\eta)^3,$$

$$\eta = \frac{y}{\delta}, \quad \frac{u_\delta}{u_{1m}} = \mp \frac{m}{1-m}\frac{1}{\overline{\Delta u}_m}, \quad \overline{\Delta u}_m = \frac{u_m - u_\delta}{u_0 - u_\delta},$$

$$m = \frac{u_\delta}{u_0}, \quad \frac{\nu_t}{\delta u_{1m}} = \varkappa,$$

and ν_t is the virtual viscosity coefficient. The upper and lower signs correspond to $m > 1$ and $m < 1$, respectively. Analogous expressions are derived for the main portion of an axially symmetric jet and for the initial portions of a plane jet and an axially symmetric jet. It is noted that this method gives a continuous deformation of the transverse velocity profile with the transition from the initial to the main portion of both the plane and axially symmetric jets in wake flow. Using the second method, the transverse velocity profile for the main portion of a plane jet is given by

$$\frac{1}{12\varkappa}\frac{v}{u_{1m}} = \pm \frac{a_1 m + 2a_2(1-m)\overline{\Delta u}_m}{12\overline{\Delta u}_m^2 [a_1 m + a_2(1-m)\overline{\Delta u}_m]^2} \frac{d\overline{\Delta u}_m}{d(\varkappa x)} \cdot F_1(\eta, \overline{\Delta u}_m),$$

$$F_1(\eta, \overline{\Delta u}_m) = \eta(1+3\eta)(1-\eta)^3 +$$

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ACC NR: AT6034556

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$$+\left[\frac{1}{1+\left(1+\frac{a_1}{a_2}\,\frac{m}{1-m}\,\frac{1}{\Delta u_m}\right)^{-1}}-1\right]\eta\left(1-2\eta^2+2\eta^3-\frac{3}{5}\eta^4\right),$$

where

$$a_1=\int_0^1 f(\eta)\,d\eta, \quad a_2=\int_0^1 f^2(\eta)\,d\eta,$$

and

$$\left(\bar{x}=\frac{x}{\delta_0}\right).$$

Analogous expressions are also found for the other three cases under consideration. The four pairs of equations are compared graphically for a number of values of η, Δu_m, and y_0/δ, and the results are in satisfactory agreement. The calculations were made by V. M. Arbekova and A. M. Treskina. Orig. art. has: 81 equations and 11 figures.

SUB CODE: 20/ SUBM DATE: none/ ORIG REF: 004/ OTH REF: 001/ ATD PRESS: 5104

Card 3/3

L 08495-67 EWP(m)/EWP(t)/EWT(m) FDN/JD/JW/WE

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515120001-6"

ACC NR: AT6034563 SOURCE CODE: UR/2632/66/000/027/0180/0198

AUTHOR: Ginevskiy, A. S. (Candidate of technical sciences)

57

B+1

ORG: none

TITLE: Potential flow outside the turbulent region of plane and axially symmetric jets

SOURCE: Moscow. Tsentral'nyy aero-gidrodinamicheskiy institut. Promyshlennaya aerodinamika, no. 27, 1966, Struynyye techeniya (Jet streams), 180-198

TOPIC TAGS: plane flow, axisymmetric flow, turbulent flow, turbulent jet

ABSTRACT: The solution for the more general problem of secondary flow outside the turbulent region of plane and axially symmetric jets/is obtained by some modification of previously obtained solutions for more particular cases. The axially symmetric case of fluid motion outside the turbulent region of a jet bounded by a conical surface is first considered. In spherical coordinates the fluid velocity is given by

$$u_r = -\frac{b}{r},$$

$$u_\theta = -\frac{b}{r}\frac{\cos\theta - \cos\theta_1}{\sin\theta},$$

where θ_1 is the half cone angle of the cone,

$$b = \frac{q}{2\pi}\frac{\cos\theta_0}{\cos\theta_0 - \cos\theta_1},$$

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UDC: 532.517.2.001.2

and θ_0 is half cone angle of the submerged turbulent jet. Stream lines outside the jet are illustrated for

$$\theta_1 = \frac{\pi}{4},\ \frac{\pi}{2},\ \frac{3}{4}\pi \text{ and } \pi.$$

An expression is derived for the axial component of the additional momentum flux in the region of potential flow, and its ratio to the jet momentum is given graphically as a function of θ_1. The fluid motion outside the turbulent region of a plane jet bounded by a dihedral angle is next considered. The jet boundaries are ± θ_0 and are directed along $\theta = 0$ in polar coordinates. The fluid velocity components are

$$u_\theta = \frac{C_1}{\sqrt{r}}\left(\cos\frac{\theta}{2} - \operatorname{ctg}\frac{\theta_1}{2}\sin\frac{\theta}{2}\right),$$

$$u_r = \frac{C_1}{\sqrt{r}}\left(\sin\frac{\theta}{2} + \operatorname{ctg}\frac{\theta_1}{2}\cos\frac{\theta}{2}\right),$$

where ± θ_1 are the surfaces of the dihedral angle and

$$C_1 = \frac{A}{4}\,\frac{\sqrt{\cos\theta_0}}{\cos\frac{\theta_0}{2} - \operatorname{ctg}\frac{\theta_1}{2}\sin\frac{\theta_0}{2}}.$$

An expression is found for the additional momentum flux, and figures analogous to those of the first case are presented. The remainder of the work is devoted to consideration of fluid motion outside a turbulent jet in wake flow using the

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distributed sink method. The method is based on the study of the ejection effect on the jet by a continuous distribution of sinks of constant or variable intensity located along the jet axis. Expressions for the stream function are derived and are shown with the distributions of sink intensities for various boundary shapes in the axially symmetric case. Orig. art. has: 102 equations and 19 figures.

SUB CODE: 20/ SUBM DATE: none/ ORIG REF: 007/ OTH REF: 002 / ATD PRESS: 5103

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515120001-6"

GINEVSKIY, Ya.M.

[redacted]

Books on polytechnical education in Ukrainian schools. Politekh. obuch. no.4:94-95 Ap '57. (MIRA 10:7)
(Ukraine--Technical education)

GINEVSKIY, Ya.M.

Survey of articles in the Czechoslovak periodical "Vyroba a skola" [Industry and the school], nos. 1 and 2. Politekh. obuch. no.5:87-88 My '57. (MIRA 10:6)
(Czechoslovakia--Technical education--Periodicals)

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515120001-6"

GINEVSKIY, Ya.

"Industry and the school" [Czech periodical]. Politekh. obuch. no.3: 88-92 Mr '58. (MIRA 11:2)

(Czechoslovakia--Technical education--Periodicals)

GARABISH, Yan,[Garabis, Jan], uchitel'; GINEVSKIY, Ya. [translator]

Experience in combining instruction with students practical work in agriculture. Politekh.obuch. no.11:79-84 N '58.
(MIRA 11:12)

1. Vosmiletnyaya srednyaya shkola v Bilovtse (Chekhoslovakiya).
(Czechoslovakia--Agriculture--Study and teaching)

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515120001-6"

GINEVSKIY, Ya.

From the foreign newspapers and magazines. Politekh.obuch. no.5:
91-92 My '59. (MIRA 12:7)
(Education)

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515120001-6"

GINEVSKIY, Ya.M.

From the pages of foreign periodicals. Politekh. obuch. no.7:84-86 Jl '59. (MIRA 12:9)

(Education)

ONDRATSEK, Iozef [Ondracek, Josef]; GINEVSKIY, Ya.M. [translator]

Laboratory work and classroom experiments in Czechoslovakian schools.
Politekh. obuch. no.8:80-81 Ag '59. (MIRA 12:10)
(Czechoslovakia--Science--Study and teaching)

GINEVSKIY, Ya.

Analysis of work areas. Politekh.obuch. no.10:93-94 O '59.
(MIRA 13:2)

(Germany, East—Vocational education)

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515120001-6"

GINEVSKIY, Ya.M. (Moskva)

"Earth and people; geographical calendar for 1962." Reviewed by Ia.M. Ginevskii. Priroda 51 no.6:124-125 Je '62. (MIRA 15:6)

(Geography—Yearbooks)

APPROVED FOR RELEASE: Thursday, September 26, 2002 CIA-RDP86-00513R000515120001-6"

ZHUKOVA, A.A., kand. med. nauk (Moskva); GUREVICH, Yu.Ya. (Moskva); FENENKO, N.F. (Zhdanov, Donetskaya oblast', UkrSSR); GINEVSKIY, Ya.M. (Moskva); GAGINA, T.N. (Alma-Ata); VERESHCHAGIN, N.K., prof. (Leningrad); ABRAMOV, L.S.; SERGEYEV, A.S. (Moskva)

New books. Priroda 54 no.8:19, 35, 70, 102, 122-125 Ag '65. (MIRA 18:8)

1. Institut geografii AN SSSR, Moskva (for Abramov).

30774. LINEYKIN, P. S.

Teoriya konvektsii v pryamougol'nom basseyne. Izvestiya Akad. nauk SSSR, Seriya geogr. i geofiz., 1949, No. 5, s. 393-405.

GINEYTENE, YE. A., CAND BIO SCI, "THERAPEUTIC FACTORS OF THE URUSKININKAY HEALTH RESORT AND THEIR effect [illegible] ~~INFLUENCE ON~~ CERTAIN INDICES OF THE STATE OF THE ORGANISM AND COMPOSITION OF THE BLOOD IN PATIENTS SUFFERING FROM RHEUMATISM AND INFECTIOUS ARTHRITIS." VIL'NYUS, 1961. (ACAD SCI LISSR. INST OF EXPERIMENTAL MEDICINE). (KL-DV, 11-61, 214).

GINGACIU, M., prof. (Bucuresti)

Method of teaching the lesson on the development of the Rumanian economy. Pt. 1. Natura Geografie 16 no. 1:53-57 Ja-F '64.

GINGACIU, Maria, prof. (Bucuresti)

Method of teaching the development of the Rumanian economy. Pt. 2. Natura Geografie 16 no. 2: 55-61 Mr-Ap '64.

GINGOL'D, A.I.; RYVKINA, S.V.; VLASOV, V.A., professor, zaveduyushchiy.

Multiple progressive ossification of muscles in a twelve year old girl.
Pediatriia no.2:55-56 Mr-Ap '53. (MLRA 6:5)

1. Detskaya klinicheskaya bol'nitsa imeni professora Filatova (for Gingol'd, Ryvkina). 2. Klinika propedevtiki detskikh bolezney pediatricheskogo fakul'teta II Moskovskogo meditsinskogo instituta imeni I.V. Stalina (for Gingol'd, Vlasov, Ryvkina). (Muscles--Diseases)

GINGOL'D, A.I.; YEREMEYEVA, A.S.

Problem of megaduodenum. Vest. rent. i rad. no.6:22-27 N-D '54.
(MLRA 8:1)

1. Iz rentgenologicheskogo otdeleniya (zav. A.I.Gingol'd) i patologoanatomicheskogo otdeleniya (zav. N.I.Soboleva) detskoy klinicheskoy bol'nitsy imeni N.F.Filatova (glavnyy vrach M.N. Kalutina) i kliniki detskoy khirurgii II Moskovskogo meditsinskoto instituta imeni I.V.Stalina (zav. kafedroy prof. S.D.Ternovskiy)

(DUODENUM, abnormalities
megaduodenum)
(ABNORMALITIES,
megaduodemum)