

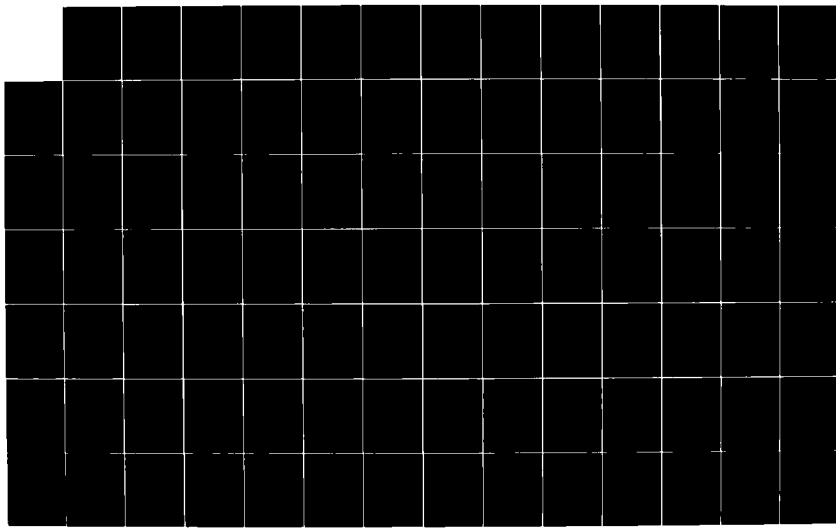
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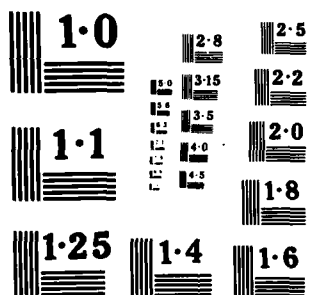
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STUDY OF AEROSPACE MATERIALS, COATINGS, ADHESIONS
AND PROCESSESAircraft Icing Processes

1st. Volume

Principal Investigator:
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(Madrid). Spain.

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A handwritten signature in cursive script, reading "Larell K. Smith".

LARELL K. SMITH, Major, USAF
Chief, Physics/Physical Chemistry

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NOTE

This 1st Volume refers exclusively to the Primary Aim (Theoretical Study of the Trajectories: Mathematical Model, FORTRAN Program and Sets of Results) included in the Second Year Proposal submitted to the European Office of Aerospace Research and Development, in February, 1983, that produced Grant NO. AFOSR-83-0340 as a continuation of the Grant NO. AFOSR-82-0316.

The work done referring to the Secondary Aim (Icing Simulator and Metering System) is to be presented in a separated Second Volume.

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STUDY OF AEROSPACE MATERIALS, COATINGS, ADHESIONS
AND PROCESSES

Aircraft Icing Processes

Primary Aim

Ernesto Montiel R.
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14 September 1984

Final Scientific Report, 15 Sept.1983 - 14 Sept.1984

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Prepared for INSTITUTO NACIONAL DE TECNICA AEROESPACIAL
"Esteban Terradas". Torrejón de Ardoz, Madrid, Spain.
and
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Introduction

The main purpose conducting the work implied in this report is to provide INTA with a set of computer programs, included in a coherent system for analyzing aircraft icing phenomena, as a necessary help to the aeronavegability certification responsibilities of this national spanish Institute.

In particular, this report concerns to a second phase in which a computer program, that provides the trajectories of the droplets of a cloud when a two-dimensional body of any cross section moves normally to its axis, is established considering the case in which the Stokes Law for the motion of an sphere is applicable, as well as the case in which that law is not applicable due to the higer Reynolds numbers involved. In both cases the assumptions made have been the following:

- Low concentration of particles, in such a way that the flow-field of the air is not affected by the presence of the particles.
- The effect of gravity is negligible.
- The effect of compressibility is negligible.
- The effect of the boundary layer is negligible.
- Incompressible, potential flowfield. No circulation.

The trajectories described by the droplets with respect to the section are presented, graphically, in a normalized pattern in which the maximum dimension of the section in the drawing is always approximately the same whatever the dimensions of the real body may be. Nevertheless, the point where the trajectories start can be selected outside the enclosing frame, which is also always the same.

Mathematical Model

To establish a M.M., corresponding to the trajectories that the droplets of a cloud describe with respect to a two-dimensional body which approaches moving normally to its axis, is the first step of the Primary Aim established in the November 1981 INTA Proposal.

We have established one such Mathematical Model, analyzing the relations existing between the principal variables implied in the physical phenomenon of the motion of the droplets under the actions of the viscous and inertial forces.

The M.M. has been established considering two different cases, according to the possibility of applying the Stokes Law. This possibility depends upon the value of the Reynolds number that needs to be calculated in each one of the steps in which each one of the trajectories is divided for its calculation

The calculations start from a point that we can select arbitrarily at such a distance of the profile that permits to suppose reasonably that the perturbation of the air at this point, due to the motion of the body, is neglectable.

Though, in both cases, we establish the set of equations with a notation usual in Physics, afterwards in both cases, we make a change to an intermediate notation, by capital letters, as an approximation to the final notation to be employed in the FORTRAN Program that constitutes the second step of the Primary Aim of the Proposal.

Case in which Stokes Law is applicable

When the profile moves in the air, it produces in each point of the fluid an induced wind, which can be represented by a vector. The difference between this vector and the vector representing the absolute velocity of the droplet considered, is another vector $\vec{U}$ which represents the relative velocity between the air and the droplet. This relative velocity produces on the spherical droplet of diameter "d" a force $\vec{f}$ given by the Stokes Law:

$$f = 3\pi\mu U d \quad (1)$$

where μ is the viscosity of the air. This force has the same direction and sense that the relative velocity. Then we can write:

$$\vec{f} = 3\pi\mu \vec{U} d \quad (2)$$

This force, by the other hand and according to the Newton's Second Law, produces an acceleration of the droplet given by the expression:

$$\vec{f} = m \cdot \vec{a} \quad (3)$$

where m is the mass of the droplet:

$$m = \text{Volume} \cdot \text{density} = \frac{4}{3} \pi \left(\frac{d}{2}\right)^3 \cdot \rho_G$$

$$m = \frac{\pi}{6} \cdot \rho_G \cdot d^3 \quad (4)$$

From (2), (3) and (4) results:

$$3\pi\mu \vec{U} d = \frac{\pi}{6} \rho_G \cdot d^3 \cdot \vec{a}$$

$$\frac{18\mu}{\rho_G d^2} \cdot \vec{U} = \vec{a} \quad (5)$$

When the viscosity μ , the density of the droplet ρ_G and the diameter "d" of the droplet can be considered constants, the expression preceeding U can be represented by a constant B, an then, results the very simple vectorial expression:

$$B \cdot \vec{U} = \vec{a} \quad (6)$$

equivalent to the set:

$$B \cdot U_x = a_x$$

$$B \cdot U_y = a_y$$

If we consider an interval of time dt , and we denominate:

u_{xf} , u_{yf} = components of the absolute velocity u_f of the fluid at the end of the interval.

Au_{xf} , Au_{yf} = Idem at the beginning of the interval.

u_{xg} , u_{yg} = components of the absolute velocity u_g of the droplet at the end of the interval.

Au_{xg} , Au_{yg} = Idem at the beginning of the interval.

the component "x" of the mean relative velocity is given by the expression:

$$u_x = \left[(Au_{xf} - Au_{xg}) + (u_{xf} - u_{xg}) \right] / 2 \quad (9)$$

equivalent to:

$$u_x = (Au_{xf} - 2 Au_{xg} + u_{xf} - du_{xg}) / 2 \quad (10)$$

because

$$u_{xg} = Au_{xg} + du_{xg} \quad (11)$$

Reasoning in a similar manner to the "y" axis results:

$$u_y = (Au_{yf} - 2 Au_{yg} + u_{yf} - du_{yg}) / 2 \quad (12)$$

with

$$u_{yg} = Au_{yg} + du_{yg} \quad (13)$$

The increment du_{xg} relates with the acceleration a_x and the increment dt in time by the expression:

$$a_x = du_{xg} / dt \quad (14)$$

and similary:

$$a_y = du_{yg} / dt \quad (15)$$

The space traveled by the droplet along the x axis during the time dt cannot be expressed by the simple formula $dx_g = Au_{xg} \cdot dt$ because there are zones at which the velocity has a very low value. It is necessary to use the more complicated expression:

$$dx_g = Au_{xg} \cdot dt + \frac{1}{2} \cdot a_x \cdot dt^2 \quad (16)$$

and similarly:

$$dy_g = Au_{yg} \cdot dt + \frac{1}{2} \cdot a_y \cdot dt^2 \quad (17)$$

Equations (16) and (17), using (14) and (15) can be presented as:

$$dx_g = \left(Au_{xg} + \frac{du_{xg}}{2} \right) \cdot dt \quad (18)$$

$$dy_g = \left(Au_{yg} + \frac{du_{yg}}{2} \right) \cdot dt \quad (19)$$

or:

$$dt = \frac{2 \cdot dx_g}{2 \cdot Au_{xg} + du_{xg}} \quad (20)$$

$$dt = \frac{2 \cdot dy_g}{2 \cdot Au_{yg} + du_{yg}} \quad (21)$$

Substituting these expressions of dt in (14) and (15) results:

$$a_x = du_{xg} \cdot (2 \cdot Au_{xg} + du_{xg}) / (2 \cdot dx_g) \quad (22)$$

$$a_y = du_{yg} \cdot (2 \cdot Au_{yg} + du_{yg}) / (2 \cdot dy_g) \quad (23)$$

By substitution of expressions (10) and (22) in expression (7) we have:

$$\begin{aligned} B \cdot (Au_{xf} - 2 \cdot Au_{xg} + u_{xf} - du_{xg}) \cdot dx_g &= \\ = du_{xg} \cdot (2 \cdot Au_{xg} + du_{xg}) \end{aligned} \quad (24)$$

Similarly we have:

$$B \cdot (Au_{yf} - 2 \cdot Au_{yg} + u_{yf} - du_{yg}) \cdot dy_g \quad (25)$$

If we select as direction of the x axis that of the motion of the profile, the ordinate y_n of the profile results a constant and its increment dy_n is always zero, then results that the increment dy_g of the absolute ordinate y_g of the droplet is equal to the increment dy_{gn} of the relative ordinate y_{gn} of the droplet with respect to the profile:

$$dy_g = dy_{gn} \quad (26)$$

$$y_g = y_{gn} \quad (27)$$

In order to obtain the air velocity components due to the motion of the profile inside the cloud, in the sense of the X axis, we had proposed to use the expressions given at the next page for the two components V_x and V_y . Those expressions produce results, concerning non-steady flow, that can be directly related to the results produced by the well known expressions:

$$u_r = U_o \cdot \left[\left(\frac{a_o}{r} \right)^2 - 1 \right] \cdot \cos \theta \quad (28)$$

$$u_\theta = U_o \cdot \left[\left(\frac{a_o}{r} \right)^2 - 1 \right] \cdot \sin \theta \quad (29)$$

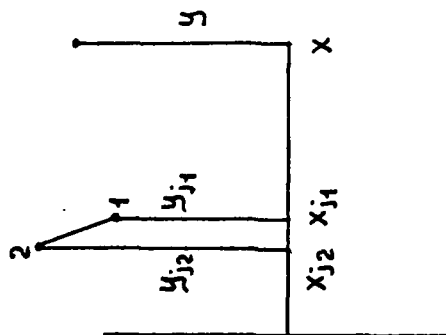
that provide the relative velocity components u and u in cylindrical coordinates (r, θ) of the air with free stream velocity U_o , due to the presence of a cylinder of radius a_o .

The agreement between the results produced by these two different methods is excellent. Nevertheless, when the given expressions for V_x and V_y are applied to a sheet of zero thickness, like the case of an infinitely long sheet of paper, the calculated components of the air velocity result both zero. This inconvenience do not appears when the expressions of V_x and V_y are applied only to the segments that are sighted from the point (x, y) at which the velocity is being calculated. This is the reason why an "Non Sighted Segments Factor" (NSSF) has been introduced in the calculations. The value of NSSF can be selected for each trajectory from zero to one, and indicates de degree of effect in the results of the segments that, though implicated in the definition of the profile, are not sighted from the (x, y) point.

The selection by the operator of the value of

$$V_x = \frac{U_N}{\pi} \left[\sum \frac{(x-x_{Fj}) \cdot |y_{j2} - y_{j1}|}{(x-x_{Fj})^2 + (y-y_{Fj})^2} - \sum \frac{(x-x_{sj}) \cdot |y_{j2} - y_{j1}|}{(x-x_{sj})^2 + (y-y_{sj})^2} \right]$$

(30)

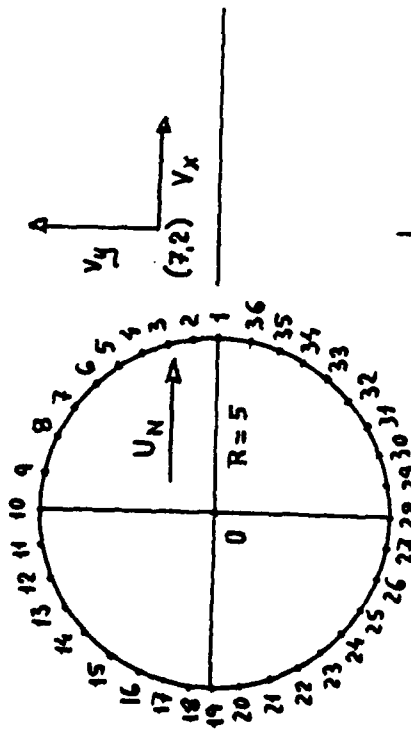


Velocity components
of the fluid.

$$V_y = \frac{U_N}{\pi} \left[\sum \frac{(y-y_{Fj}) \cdot |y_{j2} - y_{j1}|}{(x-x_{Fj})^2 + (y-y_{Fj})^2} - \sum \frac{(y-y_{sj}) \cdot |y_{j2} - y_{j1}|}{(x-x_{sj})^2 + (y-y_{sj})^2} \right]$$

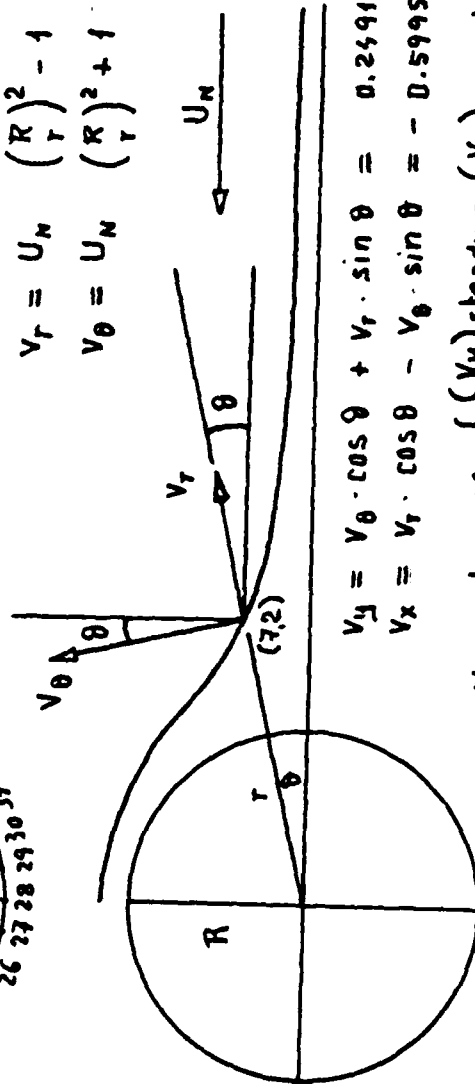
(31)

Example: Cylinder ($R=5$) moving with velocity U_N in the $\vec{x}$ direction. Air velocity in (7,2).



$$\left. \begin{aligned} V_y &= 0.2488815 \cdot U_N \\ V_x &= 0.4076202 \cdot U_N \end{aligned} \right\} \text{non-steady flow}$$

$$\begin{aligned} V_r &= U_N \left(\frac{R}{r} \right)^2 - 1 \quad \cos \theta = -0.507949 \cdot U_N \\ V_\theta &= U_N \left(\frac{R}{r} \right)^2 + 1 \quad \sin \theta = 0.4043065 \cdot U_N \end{aligned}$$



$$\left. \begin{aligned} V_y &= V_\theta \cdot \cos \theta + V_r \cdot \sin \theta = 0.249199 \cdot U_N \\ V_x &= V_r \cdot \cos \theta - V_\theta \cdot \sin \theta = -0.5995015 \cdot U_N \end{aligned} \right\} \text{steady flow}$$

It must verify $\left\{ \begin{aligned} (V_y)_{\text{steady}} &\approx (V_y)_{\text{non-steady}} & \text{D.K.} \\ (V_x)_{\text{non-steady}} &\approx (V_x)_{\text{steady}} + U_N & \text{D.K.} \end{aligned} \right.$

NSSF is made, like the values of other parameters, by conversation between the operator and the computer.

The NSSF value is printed before the initiation of each trajectory, due to its great influence on the results.

It is expected to determine experimentally, in future research, the values of NSSF that fits better to the different types of profiles (sheets, cylinders, airfoils, etc.) to be considered, and perhaps the relative distance to the profile.

There are two expressions that concerns to the relations between geometrical variables:

$$Ax_{gn} + dx_g = dx_n + x_{gn} \quad (32)$$

$$Ay_{gn} + dy_g = dy_n + y_{gn} \quad (33)$$

As we have said, if we select as direction of the x axis that of the motion of the profile results:

$$dy_n = 0 \quad (34)$$

Finally, the space traveled along the x axis by the profile during dt is given by:

$$dx_n = U_n \cdot dt \quad (35)$$

As a result of all the preceeding reasoning, we can establish the following set of equations as representative of the motion of the droplets of the cloud produced by the motion of the profile in it :

$$\begin{aligned} B \cdot (Au_{xf} - 2 Au_{xg} + u_{xf} - du_{xg}) \cdot dx_g &= \\ = du_{xg} \cdot (2 \cdot Au_{xg} + du_{xg}) &\quad (36) \end{aligned}$$

$$\begin{aligned} B \cdot (Au_{yf} - 2 \cdot Au_{yg} + u_{yf} - du_{yg}) \cdot dy_g &= \\ = -du_{yg} \cdot (2 \cdot Au_{yg} + du_{yg}) &\quad (37) \end{aligned}$$

$$u_{xf} = u_{xf}(x_{gn}, y_{gn}) \quad (38)$$

$$u_{yf} = u_{yf}(x_{gn}, y_{gn}) \quad (39)$$

$$Ax_{gn} + dx_g = dx_n + x_{gn} \quad (40)$$

$$Ay_{gn} + dy_g = dy_n + y_{gn} \quad (41)$$

$$dx_n = U_n dt \quad (42)$$

$$dy_n = 0 \quad (43)$$

$$dt = 2 \cdot dx_g / (2 Au_{xg} + du_{xg}) \quad (44)$$

$$dt = 2 \cdot dy_g / (2 Au_{yg} + du_{yg}) \quad (45)$$

This is a set of 10 equations which permits to calculate the values of the 10 variables:

u_{xf}	du_{xg}	dx_g	dx_n	----	dt
u_{yf}	du_{yg}	dy_g	dy_n	dy_{gn}	----

at the point corresponding to an increment dx_{gn} in the relative distance between the droplet and the profile, if the values:

$$\begin{array}{ccc} Au_{xf} & Au_{xg} & Ar_{gn} \\ Au_{yf} & Au_{yg} & Ay_{gn} \end{array}$$

corresponding to the actual point of the trajectory are known.

This set of equations permits to calculate, from a set of initial values, all the trajectory, step by step, whereas the hypothesis about the validity of the application of the Stokes Law be correct.

In order to solve by computer the preceeding set of equations, we can introduce some transformations in it :

First of all we shall introduce a new notation, with capital letters, selfcomprehensive, by which the preceeding set of equations can be written as:

$$\begin{aligned} B \cdot (AUXF - 2 \cdot AUXG + UXF - DUXG) \cdot DXG &= \\ &= DUXG \cdot (2 \cdot AUXG + DUXG) \end{aligned} \quad (46)$$

$$\begin{aligned} B \cdot (AUYF - 2 \cdot AUYG + UYF - DUYG) \cdot DYG &= \\ &= DUYG \cdot (2 \cdot AUYG + DUYG) \end{aligned} \quad (47)$$

$$UXF = UXF(XGN, YGN) \quad (48)$$

$$UYF = UYF(XGN, YGN) \quad (49)$$

$$AXGN + DXG = DXN + XGN \quad (50)$$

$$AYGN + DYG = DYN + YGN \quad (51)$$

$$DXN = UN \cdot DT \quad (52)$$

$$DYN = 0 \quad (53)$$

$$DT = 2 \cdot DXG / (2 \cdot AUXG + DUXG) \quad (54)$$

$$DT = 2 \cdot DYG / (2 \cdot AUYG + DUYG) \quad (55)$$

Taking into account that $XGN - AXGN = DXGN$, the equation (50) can be presented as:

$$DXN = DXG - DXGN \quad (56)$$

From (51) and (53) results :

$$YIN = AXGN + DYG \quad (57)$$

From (52) results :

$$DT = DXN / UN \quad (58)$$

From (54) and (55) results :

$$DYG = DXG \cdot (2 \cdot AUYG + DUYG) / (2 \cdot AUXG + DUXG) \quad (59)$$

From (54) and (58) results :

$$DXN / UN = 2 \cdot DXG / (2 \cdot AUXG + DUXG) \quad (60)$$

By substitution of DXN in the preceeding equation for its expression obtained from (50) results :

$$DXG = \frac{(AXGN - XGN) \cdot (2 \cdot AUXG + DUXG)}{2 \cdot UN - 2 \cdot AUXG - DUXG} \quad (61)$$

From (59) and (61) results :

$$DYG = \frac{(AXGN - XGN) \cdot (2 \cdot AUYG + DUYG)}{2 \cdot UN - 2 \cdot AUXG - DUXG} \quad (62)$$

We will establish the new variable :

$$FACX = \frac{AXGN - XGN}{2 \cdot UN - 2 \cdot AUXG - DUXG} \quad (63)$$

equivalent to :

$$FACX = \frac{-DXGN}{2 \cdot UN - 2 \cdot AUXG - DUXG} \quad (64)$$

From (61) and (63) results :

$$DXG = FACX \cdot (2 \cdot AUXG + DUXG) \quad (65)$$

From (62) and (63) results :

$$DYG = FACX \cdot (2 \cdot AUYG + DUYG) \quad (66)$$

From (46), (47) and (59) results :

$$DUYF = \frac{AUXF - 2 \cdot AUYF + UYF}{AUXF - 2 \cdot AUKG + UKF} \cdot DUKG \quad (67)$$

We can establish the new variables :

$$BN = B \cdot (AKGN - XGN) + 2 \cdot UN - 2 \cdot AUKG \quad (68)$$

$$CF = B \cdot (AUXF - 2 \cdot AUKG + UKF) \cdot (AKGN - XGN) \quad (69)$$

where :

$$AKGN - XGN = -DXGN \quad (70)$$

Then, from (46) and (61) and taking into account (68) and (69) results :

$$DUXG = \frac{BN \pm \sqrt{BN^2 - 4 \cdot CF}}{2} \quad (71)$$

We can now solve the set of equations by the following iterative process, once established the value of DXGN :

- Calculate XGN = AKGN + DXGN
- Suppose a value of DYG
- Calculate YGN = AYGN + DYG
- Calculate the components UXF, UYF of the air velocity at the point XGN, YGN.
- Calculate BN and CF by (68) and (69).
- Calculate DUXG by (71).
- Calculate FAXX by (64).
- Calculate DUYG by (67).
- Calculate DYG by (66).
- Compare the DYG calculated with the DYG supposed and tray a new DYG, adequately chosen, till the difference between the DYG calculated and the DYG supposed be little enough.
- Once determined the correct value of DYG, calculate the remaining variables :

- DYGN = DYG
 - DXG by (65)
 - XG = AXG DXG
- Etc.

Set of equations for the general case

For the general case (GC) in which Stokes Law can not necessary be applicable, we have established the following set of equations:

$$x_g = Ax_g + dx_g \quad (72)$$

$$y_g = Ay_g + dy_g \quad (73)$$

$$x_n = Ax_n + dx_n \quad (74)$$

$$y_n = Ay_n + dy_n \quad (75)$$

$$x_{gn} = Ax_{gn} + dx_{gn} \quad (76)$$

$$y_{gn} = Ay_{gn} + dy_{gn} \quad (77)$$

$$x_{gn} = x_g - x_n \quad (78)$$

$$y_{gn} = y_g - y_n \quad (79)$$

$$dx_n = U_n \cdot dt \quad (80)$$

$$dy_n = 0 \quad (81)$$

$$dx_g = Au_{xg} \cdot dt + \frac{1}{2} \cdot a_{xg} \cdot dt^2 \quad (82)$$

$$dy_g = Ay_{yg} \cdot dt + \frac{1}{2} \cdot a_{yg} \cdot dt^2 \quad (83)$$

$$du_{xg} = a_{xg} \cdot dt \quad (84)$$

$$du_{yg} = a_{yg} \cdot dt \quad (85)$$

$$u_{xf} = u_{xf}(x_{gn}, y_{gn}) \quad (86)$$

$$u_{yf} = u_{yf}(x_{gn}, y_{gn}) \quad (87)$$

$$U_x = \left((u_{xf} - u_{xg}) + (Au_{xf} - Au_{xg}) \right) / 2 \quad (88)$$

$$U_y = \left((u_{yf} - u_{yg}) + (Au_{yf} - Au_{yg}) \right) / 2 \quad (89)$$

$$f_x = \pm C_{Dx} \cdot \frac{1}{2} \rho_f \cdot U_x^2 \cdot A \quad (90)$$

$$f_y = \pm C_{Dy} \cdot \frac{1}{2} \rho_f \cdot U_y^2 \cdot A \quad (91)$$

$$f_x = m_g \cdot a_{xg} \quad (92)$$

$$f_y = m_g \cdot a_{yg} \quad (93)$$

$$C_{Dx} = C_{Dx} \cdot (R_x) \quad (94)$$

$$C_{Dy} = C_{Dy} \cdot (R_y) \quad (95)$$

$$R_x = \text{ABS} (U_x) d_g / \nu \quad (96)$$

$$R_y = \text{ABS} (U_y) d_g / \nu \quad (97)$$

$$A = \pi \cdot r_g^2 = \frac{\pi}{4} \cdot d_g^2 \quad (98)$$

$$m_g = \frac{\pi}{6} \cdot \rho_g \cdot d_g^3 \quad (99)$$

The double signe $\left(\begin{smallmatrix} + \\ - \end{smallmatrix} \right)$ indicates that the force acting on the droplet is not necessary an accelerating force. There are zones at which the air acts on the particle like a brake decelerating its motion. It was not necessary to take this double signe into account in the case of the Stokes Law because in that case the force depended directly upon the relative velocity U due to the particular expression of C_D versus Reynolds number. On the contrary, in the actual case, the signs of U_x and U_y are not directly transmitted to the forces f_x and f_y because U_x and U_y are squared and hence the necessity of the sign preceeding the expressions of the forces.

With respect to the expression of the drag coefficient, it is different according to the zone of the Reynolds number at which we are operating :

For Reynolds numbers from .1 till 1. we will use the Oseen's expression :

$$C_D = \frac{24}{R_e} + 4.5 \quad (100)$$

For Reynolds numbers greater than 1. we will use our own expression :

$$C_D = 10. \frac{(3.92494 - \log R_e)^2}{8.322698} - .4038228 \quad (101)$$

which is valid for Reynolds numbers from 1. till 2000.

To solve by computer the set of equations we shall make some arrangements:

First of all we shall put the set in the intermediate notation as follows:

$$AG = AXG + DXG \quad (102)$$

$$YG = AYG + DYG \quad (103)$$

$$XN = AXN + DXN \quad (104)$$

$$YN = AYN + DYN \quad (105)$$

$$XGN = AXGN + DXGN \quad (106)$$

$$YGN = AYGN + DYGN \quad (107)$$

$$XGN = XG - XN \quad (108)$$

$$YGN = YG - YN \quad (109)$$

$$DXN = UN * DT \quad (110)$$

$$DYN = 0. \quad (111)$$

$$DXG = AUXG * DT + ACELX * DT ** 2. / 2. \quad (112)$$

$$DYG = AUYG * DT + ACELY * DT ** 2. / 2. \quad (113)$$

$$DUXG = ACELX * DT \quad (114)$$

$$DUYG = ACELY * DT \quad (115)$$

$$UXF = UXF (XGN, YGN) \quad (116)$$

$$UYF = UYF (XGN, YGN) \quad (117)$$

$$UX = ((UXF - UXG) + (AUXF - AUXG)) / 2. \quad (118)$$

$$UY = ((UYF - UYG) + (AUYF - AUYG)) / 2. \quad (119)$$

$$FUERX = \pm CDX * DEF * UX ** 2. * A / 2. \quad (120)$$

$$FUERY = \pm CDY * DEF * UY ** 2. * A / 2. \quad (121)$$

$$FUERX = MASSG * ACELX \quad (122)$$

$$FUERY = MASSG * ACELY \quad (123)$$

$$CDX = CDX (RX) \quad (124)$$

$$CDY = CDY (RY) \quad (125)$$

$$RX = ABS (UX) * DIAMEG / VISCI \quad (126)$$

$$RY = ABS (UY) * DIAMEG / VISCI \quad (127)$$

$$A = PI * DIAMEG ** 2. / 4. \quad (128)$$

$$MASSG = PI * DEG * DIAMEG ** 3. / 6. \quad (129)$$

$$CD = 24. / R + 4.5 \quad (130)$$

$$CD = 10. * ((3.92494 - A \log_{10}(R)) ** 2. / 8.322698 - .4038228 \quad (131)$$

In order to give the diameter in microns and the fluid density in lb ft^{-3} , as desired, we will establish the coefficient :

$$\text{COFU8} = (\text{DEFI5}/158824.) * (\text{DIAMG}/10.) ** 2. \quad (132)$$

by which, the expression of the force FX multiplied by 10. to 8 results:

$$\text{FUERX8} = \mp \text{COFU8} * \text{CDX} * \text{UX} ** 2. \quad (133)$$

For the Y axis we will obtain a similar expression of FUERY8 :

$$\text{FUERY8} = \mp \text{COFU8} * \text{CDY} * \text{UY} ** 2. \quad (134)$$

These variables FUERX8 and FUERY8 will be used to calculate the accelerations ACELX and ACELY of the droplet along the X and Y axes respectively, resulting:

$$\text{ACELX} = 19.1 * \text{FUERX8} / (\text{DEG} * (\text{DIAMG}/10.) ** 3.) \quad (135)$$

$$\text{ACELY} = 19.1 * \text{FUERY8} / (\text{DEG} * (\text{DIAMG}/10.) ** 3.) \quad (136)$$

To calculate the relative velocity between the air and the droplet, we suppose that, for an interval little enough, it is possible to neglect, in the expressions corresponding UX and UY, the differential terms DUXF/2. and DUYF/2., resulting the following expressions :

$$\text{UX} = \text{AUXF} - \text{AUXG} - (\text{ADUXG}/2.) * \text{DTGC} / \text{ADT} \quad (137)$$

$$\text{UY} = \text{AUYF} - \text{AUYG} - (\text{ADUYG}/2.) * \text{DTGC} / \text{ADT} \quad (138)$$

Also would be possible to use the approximate expressions :

$$\text{UX} = \text{AUX} + \text{DUX} = \text{AUX} + \text{ADUX} * \text{DTGC} / \text{ADT} \quad (139)$$

$$\text{UY} = \text{AUY} + \text{DUY} = \text{AUY} + \text{ADUY} * \text{DTGC} / \text{ADT} \quad (140)$$

In all these expressions, the fraction DTGC/ADT takes care of the first step of this general case (GC) for which the value ADT of the preceeding DT has not necessarily the value DTGC supposed for all the steps in this GC.

In the case of $FF=1$, the rate of ice growing on the surface of the profile equals the water mass deposition rate (WMDR).

At the zone determined by the collision points (AXCP,AYCP) and (XCP,YCP) of two consecutive trajectories, the WMDR can be calculated, in grammes per minute and square centimeter by the expressions:

$$BASE=((AXCP-XCP)**2.+(YCP-AYCP)**2.)*.5$$

$$WMDR=6.*RLWC*DVGN0*(UN/1000.)/(BASE*100.)$$

where the units to be used are those later indicated for each one of the variables.

These two expressions are included as lines 0850 and 0851 in the AIP07 Program to be taken into account in future expansions of this program.

The AIP07 FORTRAN Program

This is the program presented as a result of the research work performed during the period 15-Sept-83 / 14-Sept-84. It corresponds to the second year of work stated in the 1981 Proposal concerning Aircraft Icing. All the goals there established have been reached.

The fundamental difference between the AIP05 and the AIP07 programs lies in that the former can be applied only to cylindrical sections while the latter is applicable to sections of any shape.

The AIP07 program is submitted continuously to a process of revision in order to introduce new improvements. This is the reason why it presents groups of sentences concerning future developments.

Like the AIP05, the AIP07 program includes a great deal of logical sentences constituting like a matrix in which the calculating units are immersed, giving to the program a great versatility.

When starting the program it is possible to select the values of the following variables:

C= Chord of the profile (cm).

NS= Number of segments defining the section.

UNK= Body speed normal to its infinite span (Knots).

DEFI5= Air density (lb ft^{-3}) times 10 to 5.

ETAI5= Viscosity index of the air ($\text{lb ft}^{-1} \text{sec}^{-1}$) times 10 to 5 .

RLWC= LWC (grammes meter⁻³) .

DIAMG= Droplet diameter (microns) .

DEG= Droplet density (grammes cm⁻³) .

XGNO= Initial abscise of the droplet (cm).

DVGNO= For automatic case: Increment of the initial ordinate of the droplet in order to initiate a new trajectory (cm) .

Q= For the case in which Stokes Law is applicable:

Number of steps of value DXGN contained in the initial abscise ($= - XGNO/DXGN$), (adimensional).

COTA = Tolerance in % permitted to calculate the solutions in the iterative processes.

YGNO = Initial ordenate of the droplet (cm) .

DTGC = Differential of time for the general case.

There are other questions that, though formulated, are not used in the AIP07 Program. They are put among the initial questions to be answered to the computer as a prevision for future expansions. These questions are the following:

COMPACT ICE DENSITY IN
GRAMMES/CUBIC CENTIMETER ? (DEHIC)
DENSITY RATIO ? (RDDE)

We can answer 1 to any of them to pass to the next question.

There are other questions concerning to the mode of operation:

It is possible to calculate one trajectory starting from any arbitrarily selected ordenate, then another one, etc. ("MANUAL MODE") on condition that we will answer 1. to the question "ONLY ONE TRAJECTORY ? ". Also it is possible to calculate automatically all the trajectories contained between two of initial ordenates YGNO and YGNOX and separated DYGNO at XGNO , each one to the next trajectory, on condition that initially we will answer 0. to the preceding question and we will establish the value of DYGNO when the computer asks for this value. If desired, that portion of the trajectories contained in the reference frame, can be drawn.

The constant section of the infinitely long body to be considered under the icing effect, can be defined, at a certain angle of attack, by the abscises and ordenates of up to 100 points, counterclockwise located on the profile. This values can be given by punched tape, free format, though, in the case of circumference or NACA four digits profile, the program has provisions for an internal generation of the defining points.

The AIP07 Program has also provisions to change, before starting the calculation of the trajectories, the angle of attack in any desired number of degrees with respect to the angle of attack at which the profile has been defined. If desired, the new coordenates of the defining points can be given by the computer to the operator in punched tape, `FORMAT(2X,F10.3)` . Both, the initial and the final, angles of attack, as well as the change, are printed as ALF, ALFA and DOLF respectively.

The results provided by the computer consist of:

A)- The values of the established data:

C,NS,UNK,DEFI5,ETAI5,RLWC,DIAMG,DEG,
DEHIC,RDDE,XGNO,DYGNO,Q,COTA,S'TT.YGNO.
LENS,SLFROM,SLUPTO,COUPLE,DTGC,PROFIE,
ALF,ALFA,YGNOX.

B)- The values of some auxiliary variables, calculated in the program, that can be useful to do some, always desirable, verifications:

UN = speed of the body (cm/sec) .

VISCI = kinematic viscosity (stoke) .

ETA5 = viscosity index (poise)
times 10. to 5.

BEP = auxiliary variable, used for sizing the drawings.

GLU = auxiliary variable, with no special meaning, implicated in the Stokes case calculations.

XGNTLP = left-hand abscise of the standard frame.

SW = signal of writing. It is used for tabulation each SW steps. Its value is $Q/100$.

COTO = per unit admisible error.

RLAMD = auxiliary variable, with no special meaning, implicated in the calculations of forces and accelerations.

COFUS = Idem.

DALF = Difference between the desired and the initial angle of attack of the profile.

When we desire a number of decimals greater than the provided by the condensed (normal) table of results, we can obtain the values of the same variables under other format with more decimals, for the steps ranging between two steps, arbitrarily selected, of those composing the trajectory, on condition that we answer 1. to the question "LENS ?" and give the numbers of the initial and the final selected steps when the computer will ask "FROM STEP NUMBER ?" and "UP TO STEP NUMBER ?" respectively.

- C)- The values of the variables at each step:
- S = number of the step in the trajectory.
 - T = time in seconds.
 - XN = abscise of the profile (cm) .
 - XG = abscise of the droplet. (cm).
 - XGN = relative abscise of the droplet
with respect to the profile (cm) .
 - YGN = ordenate of the droplet. (cm).
 - UXF = component X of the air velocity.(cm/sec)
 - UYF = component Y of the air velocity.(cm/sec)
 - UXG = component X of the droplet's velocity.
 - UYG = component Y of the droplet's velocity.
 - DXG = absolute space traveled by the droplet
along X axis. (cm).
 - DXGN = relative spate traveled by the droplet
with respect to the profile (cm) .
 - DYG = absolute space traveled by the droplet
along Y axis. (cm).
 - REYNM = Reynolds number. Mean value between
the end and the beginning of the
actual step.
- D)- The drawing of the portion of the trajectory,
or trajectories, contained inside the standard
frame in which the standard profile is
enclosed.
- E)- Information about whether the droplet hits
or not the profile. In the first case the
legende "THE DROPLET HITS THE SURFACE" is
printed. Otherwise the legende "XGNLP
REACHED" is the one printed at the end of
the tabulation when the droplet reaches the
left hand side of the normalized frame.

*AIP07 T=00004 IS ON CR00026 USING 00120 BLKS R=0000

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0001  FTN4X
0002  PROGRAM AIP07
0003  C
0004  C  AIRCRAFT ICING PROCESSES. RESEARCH PROGRAM. INTA.
0005  C  AUTOR: DR.E.MONTIEL R. .ON BOARD INSTRUMENTS,
0006  C  PROTECTION AND RESCUE SECTION. AERODYNAMICS
0007  C  AND NAVGABILITY DEPARTMENT. INTA. SPAIN.
0008  C  THE A.I.P. RESEARCH PROGRAM IS SPONSORED BY
0009  C  THE AIRFORCE OFFICE OF SCIENTIFIC RESEARCH.
0010  C  GRANT NO. AFDSR-93-0340.
0011  C  WITH THE COLLABORATION OF THE COMPUTERS
0012  C  LABORATORY OF THE FLIGHT TEST SECTION.
0013  C  THIS PROGRAM CALCULATES THE TRAJECTORIES, OF THE
0014  C  DROPLETS, PRODUCED BY THE MOTION INSIDE A CLOUD
0015  C  OF AN INFINITELY LONG BODY, WHICH CONSTANT CROSS
0016  C  SECTION IS DEFINED, AT A CERTAIN ANGLE OF ATTACK, BY
0017  C  THE ABCISES AND ORDENATES OF UP TO 100 POINTS,
0018  C  COUNTERCLOCKWISE LOCATED ON THE PROFILE.
0019  C  THIS POINTS CAN BE GIVEN BY PUNCHED TAPE.
0020  C  THE LAST POINT MUST BE COINCIDENT WITH THE FIRST ONE.
0021  C  FOR THE CALCULATIONS THE PROFILE IS APPROXIMATED BY
0022  C  A POLYGONAL LINE COMPOSED BY SEGMENTS LIMITED BY
0023  C  THE GIVEN POINTS. BE AWARE: THE NUMBER OF THE POINTS
0024  C  EXCEEDS ALWAYS IN ONE TO THAT OF THE SEGMENTS.
0025  C  WHEN THE PROFILE IS A CIRCUMFERENCE OR A NACA FOUR
0026  C  DIGITS, THE PROGRAM HAS PROVISIONS FOR AN INTERNAL
0027  C  GENERATION OF THE DEFINING POINTS.
0028  C  IF DESIRED, THE VALUES OF THE MOST IMPORTANT
0029  C  VARIABLES, CALCULATED STEP BY STEP ALONG EACH
0030  C  TRAJECTORY, CAN BE TABULATED.
0031  C  IF DESIRED, EACH TRAJECTORY CAN BE DRAWN.
0032  C  IN CASE OF INPINGEMENT, THE LEGENDE "THE DROPLET
0033  C  HITS THE SURFACE." IS PRINTED. OTHERWISE THE
0034  C  LEGENDE AT THE END OF THE TABULATION IS "XGNLP
0035  C  REACHED."
0036  C  IF THE AUTOMATIC MODE IS SELECTED A WHOLE
0037  C  SET OF TRAJECTORIES IS OBTAINED BETWEEN
0038  C  THE STATED LIMITS. IN MANUAL MODE, EACH
0039  C  TRAJECTORY MUST BE SELECTED BY THE OPERATOR.
0040  C  DIMENSION A(100),D(100),XX(100),YY(100)
0041  C  COMMON/CON2/K(100),Y(100)
0042  C  PI=3.141592
0043  C  WRITE(12)0,1,0,1500
0044  C  WRITE(12)1,1,9999,1500
0045  C  WRITE(12)1,1,9999,8500
0046  C  WRITE(12)1,1,0,8500
0047  C  WRITE(12)1,1,0,1500
0048  C  WRITE(12)0,1,0,5000
0049  C  WRITE(1,10) -
0050  10  FORMAT(2X,"CYLINDER ? ANSWER: YES=1. NO=0.")
0051  C  READ(1,*) ESCYL
0052  C  IF(ESCYL.GT.0.5) GO TO 190
0053  20  WRITE(1,30)
0054  30  FORMAT(2X,"NACA FOUR DIGITS PROFILE ?",
0055  C  " ANSWER: YES=1. NO=0.")
0056  C  READ(1,*) ESN40
0057  C  IF(ESN40.GT.0.5) GO TO 270
0058  40  NUMBER=0.

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0059		CDATO=0.
0060		WRITE(1,50)
0061	50	FORMAT(2X,"NUMBER OF SEGMENTS ?")
0062		READ(1,*) HS
0063		N=HS+1
0064		WRITE(1,60)
0065	60	FORMAT(2X,"ANGLE OF ATTACK AT WHICH",
0066		*" THE PROFILE IS DEFINED (DEGREES) ?")
0067		READ(1,*) ALF
0068		WRITE(1,70)
0069	70	FORMAT(2X,"ABSCISES,ORDENATES ? (CM)")
0070		READ(5,*)(A(I),I=1,100)
0071		READ(5,*)(O(K),K=1,100)
0072	90	AI=A(1)
0073		DO 110 J=2,N
0074		IF(A(J)-AI)100,110,110
0075	100	AI=A(J)
0076		JAI=J
0077		OAI=O(J)
0078	110	CONTINUE
0079		AD=A(1)
0080		DO 130 J=2,N
0081		IF(A(J)-AD)130,130,120
0082	120	AD=A(J)
0083		JAD=J
0084		OAD=O(J)
0085	130	CONTINUE
0086		OI=O(1)
0087		DO 150 J=2,N
0088		IF(O(J)-OI)140,150,150
0089	140	OI=O(J)
0090		JOI=J
0091		AOI=A(J)
0092	150	CONTINUE
0093		OS=O(1)
0094		DO 170 J=2,N
0095		IF(O(J)-OS)170,170,160
0096	160	OS=O(J)
0097		JOS=J
0098		AOS=A(J)
0099	170	CONTINUE
0100		OO=(OS+OI)/2.
0101		AO=(AO+AI)/2.
0102		DIAG=SQRT((AO-AI)**2.+(OS-OI)**2.)
0103		C=DIAG
0104		DO 180 J=1,N
0105		XX(J)=A(J)-AO
0106	180	YY(J)=O(J)-OO
0107		GO TO 470
0108	190	NUMBER=0.
0109		WRITE(1,200)
0110	200	FORMAT(2X,"INTERNAL GENERATION ?",
0111		*" ANSWER: YES=1. NO=0.")
0112		READ(1,*) DIG1
0113		IF(DIG1.GT.0.5) GO TO 210
0114		GO TO 40
0115	210	WRITE(1,220)
0116	220	FORMAT(2X,"DIAMETER (CENTIMETERS) ?")
0117		READ(1,*) C
0118		CDATO= 1.

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0119      A0=C/2.
0120      WRITE(1,230)
0121 230   FORMAT(2X,"NUMBER OF SEGMENTS ? ",
0122      *"(LEATER THAN 100)")
0123      READ(1,*) NS
0124      N=NS+1
0125      ZETI=2.*PI/NS
0126      A(1)=A0
0127      O(1)=0.
0128      J=1
0129      DO 240 I=1,NS
0130      J=J+1
0131      A(J)=A0*COS(ZETI*I)
0132 240   O(J)=A0*SIN(ZETI*I)
0133      WRITE(1,250)
0134 250   FORMAT(2X,"ANGLE OF ATTACK AT WHICH",
0135      *" THE CYLINDER IS DEFINED (DEGREES) ?")
0136      READ(1,*) ALF
0137      DO 260 J=1,N
0138      XX(J)=A(J)
0139 260   YY(J)=O(J)
0140      GO TO 470
0141 270   WRITE(1,280)
0142 280   FORMAT(2X,"INTERNAL GENERATION ?",
0143      *" ANSWER: YES=1. NO=0.")
0144      READ(1,*) DIG2
0145      IF(DIG2.GT.0.5) GO TO 290
0146      GO TO 40
0147 290   WRITE(1,300)
0148 300   FORMAT(2X,"NUMBER OF THE PROFILE ?",
0149      *" (FOR EXAMPLE: 2409)")
0150      READ(1,*) NUMBER
0151 310   WRITE(1,320)
0152 320   FORMAT(2X,"CHORD ? (CM)")
0153      READ(1,*) C
0154      CDATO=1.
0155 330   WRITE(1,340)
0156 340   FORMAT(2X,"ANGLE OF ATTACK AT WHICH THE",
0157      *" PROFILE IS DEFINED (DEGREES) ? . ANSWER: 0.")
0158      READ(1,*) ALF
0159      L1=IFIX(NUMBER/1000.)
0160      K3=NUMBER-1000*L1
0161      L2=IFIX(K3/100.)
0162      K2=K3-100*L2
0163      YA=L1*C/100.
0164      XA=L2*C/10.
0165      THICK=K2*C/100.
0166      DELTX=C/20.
0167      X=-DELTX
0168      DO 450 J=1,50
0169      E1=(3./4.-1./200.)*C-X
0170      IF(E1.GT.0) GO TO 350
0171      E2=(7./8.-1./400.)*C-X
0172      IF(E2.GT.0) GO TO 360
0173      E3=(15./16.-1./800.)*C-X
0174      IF(E3.GT.0) GO TO 370
0175      E4=(31./32.-1./1600.)*C-X
0176      IF(E4.GT.0) GO TO 380
0177      E5=(63./64.-1./3200.)*C-X
0178      IF(E5.GT.0) GO TO 390

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0179	E6=(127./128.-1./6400.)*C-X	
0180	IF(E6.GT.0) GO TO 400	
0181	DELTX=C/1152	
0182	GO TO 410	
0183	350 DELTX=C/20.	
0184	GO TO 410	
0185	360 DELTX=C/40.	
0186	GO TO 410	
0187	370 DELTX=C/80.	
0188	GO TO 410	
0189	380 DELTX=C/160.	
0190	GO TO 410	
0191	390 DELTX=C/320.	
0192	GO TO 410	
0193	400 DELTX=C/640.	
0194	410 X=X+DELTX	
0195	BET=C-X	
0196	CO=ABS(BET/C)	
0197	TERCO=1.4845*SQRT(CO)	
0198	YT=THICK*(TERCO-CO*(.63+CO*(1.758-CO*(1.4215-CO*.5075))))	
0199	AYC=YC	
0200	IF(XA-BET)420,420,430	
0201	420 YC=YA*X*(2.*(C-XA)-X)/(C-XA)**2.	
0202	TZ=(YC-AYC)/DELTX	
0203	COSZ=1./SQRT(1.+TZ**2.)	
0204	SINZ=TZ*COSZ	
0205	GO TO 440	
0206	430 YC=YA*(C-X)*(2.*XA-C+X)/XA**2.	
0207	TZ=(YC-AYC)/DELTX	
0208	COSZ=1./SQRT(1.+TZ**2.)	
0209	SINZ=-TZ*COSZ	
0210	440 CALL XYUL(X,YC,YT,SINZ,COSZ,XU,YU,XL,YL)	
0211	A(J)=XL	
0212	O(J)=YL	
0213	I=101-J	
0214	A(I)=XU	
0215	450 O(I)=YU	
0216	DO 460 J=1,100	
0217	XX(J)=A(J)-C/2.	
0218	460 YY(J)=O(J)	
0219	ALF=0.	
0220	N=100.	
0221	NS=N-1.	
0222	WRITE(1,461)	
0223	461 FORMAT(2X,"MUST I PRINT THE ABSCISES AND",//	
0224	" ORDENATES OF THE PROFILE AT THE ANGLE",//	
0225	" OF ATTACK AT WHICH IT HAS BEEN DEFINED ?",//)	
0226	READ(1,*) PAO	
0227	IF(PAO.LT.0.5) GO TO 530	
0228	470 WRITE(6,480) ALF	
0229	480 FORMAT(1H1,///,2X,"ANGLE OF ATTACK AT WHICH",	
0230	" THE PROFILE IS DEFINED :",X,F6.2,X,	
0231	"DEGREES.",///)	
0232	WRITE(6,490)	
0233	490 FORMAT(4X,"DEFINITION OF THE PROFILE",	
0234	" AT THIS ANGLE OF ATTACK:",//)	
0235	WRITE(6,500)	
0236	500 FORMAT(1H0,4X,"ABSCISES OF THE POINTS",	
0237	" LIMITING THE SEGMENTS:",//)	
0238	WRITE(6,520) A	

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0239      WRITE(6,510)
0240 510   FORMAT(1H0,4X,"ORDENATES OF THE POINTS",
0241      *" LIMITING THE SEGMENTS:",/)
0242      WRITE(6,520) 0
0243 520   FORMAT(5(2X,F8.2))
0244 530   WRITE(1,540)
0245 540   FORMAT(2X,"DESIRED ANGLE OF ATTACK ?",
0246      *" (DEGREES)")
0247      READ(1,*) ALFA
0248      DALF=ALFA-ALF
0249      DALFR=DALF*PI/180.
0250      DO 550 J=1,N
0251      X(J)=XX(J)*COS(DALFR)-YY(J)*SIN(DALFR)
0252 550   Y(J)=XX(J)*SIN(DALFR)+YY(J)*COS(DALFR)
0253      J=1
0254      X=X(J)
0255      Y=Y(J)
0256      CALL DRAW(C,X,Y,NXP,NYP)
0257      WRITE(12)0,1,NXP,NYP
0258      DO 560 J=2,N
0259      X=X(J)
0260      Y=Y(J)
0261      CALL DRAW(C,X,Y,NXP,NYP)
0262 560   WRITE(12)1,1,NXP,NYP
0263      WRITE(12)-1,1,9999,5000
0264 570   XD=X(1)
0265      DO 590 J=2,N
0266      IF(X(J)-XD)590,590,580
0267 580   XD=X(J)
0268      JXD=J
0269      YXD=Y(J)
0270 590   CONTINUE
0271      DO 591 J=1,N
0272      X(J)=X(J)-XD
0273 591   Y(J)=Y(J)-YXD
0274      WRITE(1,592)
0275 592   FORMAT(2X,"MUST I PRINT THE ABSCISES AND",/,
0276      *" ORDENATES OF THE PROFILE, AT THE DESIRED",/,
0277      *" ANGLE OF ATTACK, WITH RESPECT TO THE",/,
0278      *" ACTUAL AXES ?",/)
0279      READ(1,*) PXY
0280      IF(PXY.LT.0.5) GO TO 600
0281      WRITE(6,593) ALFA
0282 593   FORMAT(1H1,/,/,2X,"ACTUAL ANGLE OF ATTACK:",
0283      *X,F6.2,X,"DEGREES.",/,,/)
0284      WRITE(6,594)
0285 594   FORMAT(4X,"DEFINITION OF THE PROFILE",
0286      *" AT THIS ANGLE OF ATTACK:",/)
0287      WRITE(6,595)
0288 595   FORMAT(1H0,4X,"ABSCISES OF THE POINTS",
0289      *" LIMITING THE SEGMENTS:",/)
0290      WRITE(6,597) X
0291      WRITE(6,596)
0292 596   FORMAT(1H0,4X,"ORDENATES OF THE POINTS",
0293      *" LIMITING THE SEGMENTS:",/)
0294      WRITE(6,597) Y
0295 597   FORMAT(5(2X,F8.2))
0296 600   XI=X(1)
0297      DO 602 J=2,N
0298      IF(X(J)-XI) 601,602,602

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0299 601 XI=X(J)
0300      JXI=J
0301      OXI=O(J)
0302 602 CONTINUE
0303 610 WRITE(1,620)
0304 620 FORMAT(2X,"BODY SPEED IN KNOTS ?")
0305      READ(1,*) UNK
0306      WRITE(1,630)
0307 630 FORMAT(2X,"AIR DENSITY IN LB(M)/CUBIC FEET",
0308      * " TIMES 10 TO 5 ?")
0309      READ(1,*) DEF15
0310      WRITE(1,640)
0311 640 FORMAT(2X,"VISCOSITY INDEX IN LB(M)/(FT*SECOND)",
0312      * " TIMES 10 TO 5 ?")
0313      READ(1,*) ETA15
0314      WRITE(1,650)
0315 650 FORMAT(2X,"LIQUID WATER CONTENT IN",
0316      * " GRAMMES/CUBIC METER ?")
0317      READ(1,*) RLWC
0318      WRITE(1,660)
0319 660 FORMAT(2X,"DROPLET DIAMETER IN MICRONS ?")
0320      READ(1,*) DIAMG
0321      WRITE(1,670)
0322 670 FORMAT(2X,"DROPLET DENSITY IN",
0323      * " GRAMMES/CUBIC CENTIMETER ?")
0324      READ(1,*) DEG
0325      WRITE(1,680)
0326 680 FORMAT(2X,"COMPACT ICE DENSITY IN",
0327      * " GRAMMES/CUBIC CENTIMETER ?")
0328      READ(1,*) DEHIC
0329      WRITE(1,690)
0330 690 FORMAT(2X,"DENSITY RATIO ?")
0331      READ(1,*) RDDE
0332      WRITE(1,700)
0333 700 FORMAT(2X,"INITIAL ABSCISE OF THE DROPLET WITH",
0334      * "/", " RESPECT TO THE BODY IN CENTIMETERS ?", "/",
0335      * " RECOMMENDED: ", "/",
0336      * " XGN0=10*C")
0337      READ(1,*) XGN0
0338      WRITE(1,710)
0339 710 FORMAT(2X,"FOR AUTOMATIC INCREMENT IN",
0340      * " CENTIMETERS", "/", " OF THE INITIAL ORDENATE",
0341      * " OF THE DROPLET", "/", " IN ORDER TO",
0342      * " INITIATE A NEW TRAJECTORY ?")
0343      READ(1,*) DYGN0
0344      WRITE(1,720)
0345 720 FORMAT(2X,"FOR STOKES: ABS(XGN0/DXGN) ?",
0346      * " (EQUAL OR GREATER THAN 100.)")
0347      READ(1,*) Q
0348      WRITE(1,730)
0349 730 FORMAT(2X,"PER CENT TOLERANCE IN THE EXPLORATION ?")
0350      READ(1,*) COTA
0351      WRITE(6,740)
0352 740 FORMAT(1H1,2X,"DATA:",//)
0353      WRITE(6,750)
0354 750 FORMAT(6X,"C",7X,"NS",7X,"UNK",5X,"DEF15",
0355      * 4X,"ETA15",5X,"RLWC",5X,"DIAMG",5X,"DEG",
0356      * 5X,"DEHIC",4X,"RDDE",6X,"XGN0",4X,"DYGN0",
0357      * 6X,"Q",8X,"COTA",/)
0358      IF(CDAT0.LT.0.5) GO TO 770

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0359      WRITE(6,760)C,NS,UNK,DEFIS,ETAI5,RLWC,DIANG,
0360      *DEG,DEHIC,RDDE,XGNO,DYGNO,Q,COTA
0361  760    FORMAT(4X,F5.2,5X,F4.0,4X,F4.0,5X,F5.0,4X,
0362      *F5.2,5X,F5.3,5X,F4.1,4X,F4.3,5X,F4.3,5X,
0363      *F4.3,6X,F4.0,5X,F3.1,5X,F6.0,3X,F7.6,/)
0364      GO TO 790
0365  770    WRITE(6,780)HS,UNK,DEFIS,ETAI5,RLWC,DIANG,
0366      *DEG,DEHIC,RDDE,XGNO,DYGNO,Q,COTA
0367  780    FORMAT(14X,F4.0,4X,F4.0,5X,F5.0,4X,
0368      *F5.2,5X,F5.3,5X,F4.1,4X,F4.3,5X,F4.3,5X,
0369      *F4.3,6X,F4.0,5X,F3.1,5X,F6.0,3X,F7.6,/)
0370  790    WRITE(1,800)
0371  800    FORMAT(2X,"ONLY ONE TRAJECTORY ? (MANUAL MODE)",
0372      *" ANSWER: YES=1. , NO=0")
0373      READ(1,*) SUT
0374      AUTOM=1.-SUT
0375      CN=0.
0376      WRITE(1,808)
0377  808    FORMAT(2X,"FOR AUTOMATIC: MAXIMUM VALUE",/,
0378      *" ALLOWED FOR THE INITIAL ORDENATE ?")
0379      READ(1,*) YGNOX
0380  809    WRITE(1,810)
0381  810    FORMAT(2X,"INITIAL ORDENATE",
0382      *" OF THE DROPLET IN CENTIMETERS ?")
0383      READ(1,*) YGNO
0384      IF(YGNO)811,819,812
0385  811    TOPE=-(C+YXD)
0386      IF(YGNO.GT.TOPE) GO TO 818
0387      IF(SUT.GT.0.5) GO TO 815
0388      GO TO 818
0389  812    TOPE=C-YXD
0390      IF(YGNO.GT.TOPE) GO TO 815
0391      GO TO 818
0392  815    WRITE(1,816)
0393  816    FORMAT(2X,"ATTENTION: YGNO OUT OF THE",/,
0394      *" HORIZONTAL LIMITS OF THE GRAPHIC",/,
0395      *" DO YOU WANT PRINTED RESULTS ?",/,
0396      *" ANSWER: YES=1. , NO=0.",/)
0397      READ(1,*) PR
0398      IF(PR.GT.0.5) GO TO 818
0399      GO TO 809
0400  818    WRITE(1,819)
0401  819    FORMAT(2X,"FAST CALCULATION FOR REYNOLDS LEATER THAN .1 ?",/,
0402      *" CAUTION:",/,
0403      *" ANSWER 1. IS, IN GENERAL, NOT RECOMMENDED.",/,
0404      *" ANSWER: YES=1. , NO=0.")
0405      READ(1,*) SUD
0406      WRITE(1,820)
0407  820    FORMAT(2X,"LENS ? YES=1. , NO=0.")
0408      READ(1,*) LENS
0409      WRITE(1,830)
0410  830    FORMAT(2X,"FROM STEP NUMBER ?")
0411      READ(1,*) SLFROM
0412      WRITE(1,840)
0413  840    FORMAT(2X,"UP TO STEP NUMBER ?")
0414      READ(1,*) SLUPTO
0415      WRITE(1,850)
0416  850    FORMAT(2X,"TABULATION IN COUPLE ?",
0417      *" YES=1. , NO=0.")
0418      READ(1,*) COUPLE

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0419      WRITE(1,860)
0420 960    FORMAT(2X,"DT FOR THE GENERAL CASE ?",/,
0421      *" RECOMMENDED:",/,
0422      *" DTGC=(XGN0/20000)/UNK",/)
0423      READ(1,*) DTGC
0424      IF(NUMBER.LT.0.5) GO TO 890
0425      WRITE(6,870)
0426 870    FORMAT(5X,"SUT",5X,"YGN0",6X,"LENS",5X,
0427      *"SLFROM",6X,"SLUPTO",6X,"COUPLE",7X,"DTGC",
0428      *6X,"PROFILE",8X,"ALF",7X,"ALFA",6X,"YGN0X",/)
0429      WRITE(6,880)SUT,YGN0,LENS,SLFROM,SLUPTO,
0430      *COUPLE,DTGC,HNUMBER,ALF,ALFA,YGN0X
0431 880    FORMAT(6X,F2.0,5X,F5.1,6X,F2.0,6X,F5.0,
0432      *7X,F5.0,9X,F2.0,8X,F6.5,8X,I4,6X,
0433      *F5.1,6X,F5.1,6X,F5.1,/)
0434      GO TO 920
0435 890    WRITE(6,900)
0436 900    FORMAT(5X,"SUT",5X,"YGN0",6X,"LENS",5X,
0437      *"SLFROM",6X,"SLUPTO",6X,"COUPLE",7X,"DTGC",
0438      *7X,"ALF",8X,"ALFA",6X,"YGN0X",/)
0439      WRITE(6,910)SUT,YGN0,LENS,SLFROM,SLUPTO,
0440      *COUPLE,DTGC,ALF,ALFA,YGN0X
0441 910    FORMAT(6X,F2.0,5X,F5.1,6X,F2.0,6X,F5.0,7X,
0442      *F5.0,9X,F2.0,8X,F6.5,6X,F5.1,6X,F5.1,6X,F5.1,/)
0443 920    WRITE(6,930)
0444 930    FORMAT(2X,"AUXILIAR PARAMETERS CALCULATED BY",
0445      *" AIP07 PROGRAM:",/)
0446      UN=51.48*UNK
0447      VISCI=929.*ETAIS/DEFIS
0448      ETA5=14.895*ETAIS
0449      BEP=C
0450      DXGN=-XGN0/Q
0451      GLU=-18000.*DXGN*ETA5/(DEG*DIAMG**2.)
0452      XGNLP=-(4.5*C/7+XD)
0453      TOPOS=C-YXD
0454      SW=Q/100.
0455      COTO=COTA/100.
0456      RLAMD=DIAMG/(10000.*VISCI)
0457      COFUB=(DEFIS/158824.)*(DIAMG/10.)**2.
0458      WRITE(6,940)
0459 940    FORMAT(6X,"UN",7X,"VISCI",5X,"ETA5",6X,
0460      *"BEP",6X,"GLU",6X,"XGNLP",6X,"SW",8X,
0461      *"COTO",7X,"RLAMD",6X,"COFUB",8X,"DALF",/)
0462      WRITE(6,950)UN,VISCI,ETA5,BEP,
0463      *GLU,XGNLP,SW,COTO,RLAMD,COFUB,DALF
0464 950    FORMAT(4X,F7.2,2X,F7.4,4X,F6.2,3X,
0465      *F6.2,3X,F7.2,3X,F6.2,4X,F4.0,5X,
0466      *F9.7,4X,F7.6,4X,F7.6,6X,F5.1,/)
0467      WRITE(1,960)
0468 960    FORMAT(2X,"NSSF ? (0/1.)")
0469      READ(1,*) CNSS
0470 969    WRITE(1,970)
0471 970    FORMAT(2X,"TABULATION ? : YES=1. , NO=0.")
0472      READ(1,*) TAB
0473      ARTAB=TAB
0474 980    WRITE(1,990)
0475 990    FORMAT(2X,"TRAJECTORY IN PLOTTER ?",
0476      *" ANSWER: YES=1. , NO=0.")
0477      READ(1,*) PLOT
0478      WRITE(1,1000)

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0479 1000  FORMAT(2X,"DO YOU WANT A,0 IN",
0480      *" PUNCHED TAPE ? : YES=1. , NO=0." )
0481      READ(1,*) PUNCH
0482      IF(PUNCH.LT.0.5) GO TO 1020
0483      WRITE(4,1010)(A(I),I=1,100),(O(K),K=1,100)
0484 1010  FORMAT(2X,F10.3)
0485 1020  CONTINUE
0486 1030  YGN0=YGN0-DYGN0
0487 1040  S=0.
0488      AYGN0=YGN0
0489      YGN0=YGN0+DYGN0
0490      IF(YGN0-TOPOS)1050,1049,1049
0491 1049  IF(YGN-TOPOS)1050,2290,2290
0492 1050  IF(YGN0-YGN0X)1052,1052,1051
0493 1051  IF(AUTOM.GT.0.5) GO TO 2310
0494 1052  W=0.
0495      DT=DTGC
0496      T=0.
0497      XN=0.
0498      DXG=0.
0499      XG=XGN0
0500      DYG=0.
0501      YG=YGN0
0502      DXGN=-XGN0/Q
0503      XGN=XGN0
0504      DYGN=0.
0505      YGN=YG
0506      CALL SIG(NS,XGN,YGN,CNSS,SIG1,SIG2,SIG3,SIG4)
0507      VX=(SIG1-SIG3)*UN/PI
0508      VY=(SIG2-SIG4)*UN/PI
0509      UXF=VX
0510      UYF=VY
0511      DUXG=0.
0512      UXG=UXF
0513      DUYG=0.
0514      UYG=UYF
0515      ARK=0.
0516      ARY=0.
0517      AREYN=0.
0518      RX=0.
0519      RY=0.
0520      REYN=0.
0521      REYNN=0.
0522      SF=0.
0523      FT=0.
0524      TSUP=3.
0525      ACORTE=CORTE
0526      AXCP=XCP
0527      AYCP=YCP
0528      ABXCP=BXCP
0529      ABYCP=BYCP
0530      CORTE=0.
0531 1060  WRITE(6,1070) YGN0,CNSS
0532 1070  FORMAT(//,4X,"YGN0=",X,F4.1,6X,"NSSF=",X,F5.3,/)
0533      WRITE(6,1080)
0534 1080  FORMAT(6X,"S",0X,"T",7X,"XN",7X,"XG",6X,
0535      *"XGN",6X,"YGN",6X,"UXF",6X,"UYF",6X,"UXG",6X,
0536      *"UYG",6X,"DXG",6X,"DXGN",6X,"DYG",6X,"REYNN",/)
0537 1090  IF(TAB.LT.0.5) GO TO 1110
0538      WRITE(6,1100) S,T,XN,XG,XGN,YGN,UXF,UYF,

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0539      *UXG,UYG,DXG,DXGN,DYG,REYNM
0540 1100  FORMAT(2X,F6.0,4X,F7.5,2X,F6.1,2X,F7.5,2X,
0541      *F6.1,3X,F7.4,X,F8.2,X,F8.2,X,F8.2,X,
0542      *F8.2,2X,F7.5,2X,F7.2,2X,F8.5,2X,F9.3)
0543 1110  S=S+1.
0544      DRX=RX-ARX
0545      DRY=RY-ARY
0546      DREYN=REYN-AREYN
0547      ADT=DT
0548      AT=T
0549      AXN=XN
0550      AXG=XG
0551      ADYG=DYG
0552      AYG=YG
0553      AXGN=XGN
0554      AYGN=AYG
0555      AUXF=UXF
0556      AUYF=UYF
0557      ADUXG=DXG
0558      AUXG=UXG
0559      ADUYG=DYG
0560      AUYG=UYG
0561      ARX=RX
0562      ARY=RY
0563      AREYN=REYN
0564      W=W+1.
0565      IF(SW+.2-W) 1120,1130,1130
0566 1120  W=1.
0567      IF(S.LT.1.5) GO TO 1630
0568      IF(DRX.LT.0.0.OR.DRX.EQ.0.0) GO TO 1630
0569      IF(DRY.LT.0.0.OR.DRY.EQ.0.0) GO TO 1630
0570      IF(DREYN.LT.0.0.OR.DREYN.EQ.0.0) GO TO 1630
0571 1130  IF(AREYN-.1) 1139,1139,1630
0572 1139  IF(SUD.LT.0.5) GO TO 1630
0573 1140  DXGN=-XGN/Q
0574      XGN=AXGN+DXGN
0575      IF(XGN-XGNLP) 1180,1190,1150
0576 1150  SZC=0.
0577      IF(XGN) 1160,1160,1290
0578 1160  IF(XI-XGN) 1170,1170,1290
0579 1170  SZC=1.
0580      GO TO 1290
0581 1180  XGN=XGNLP
0582 1190  IF(SF.LT.0.5) GO TO 1260
0583 1200  WRITE(6,1210)
0584 1210  FORMAT(/,7X,"XGNLP REACHED",/)
0585      WRITE(12)-1,1,9999,5000
0586      FT=1.
0587      CORTE=0.
0588      IF(AUTOM.GT.0.5) GO TO 2250
0589      IF(DPT.GT.0.5) GO TO 1240
0590      DPT=1.
0591      GO TO 1240
0592 1211  WRITE(1,1212)
0593 1212  FORMAT(2X,"NSSF ?",/)
0594      READ(1,*) CNSS
0595 1220  WRITE(1,1230)
0596 1230  FORMAT(2X,"YGN0 ?",/)
0597      READ(1,*) YGN0
0598      IF(YGN0)1231,1233,1232

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0599 1231 TOPE=-(C+YXD)
0600      IF(YGNO.GT.TOPE) GO TO 1233
0601      IF(SUT.GT.0.5) GO TO 2299
0602      GO TO 1233
0603 1232 TOPE=C-YXD
0604      IF(YGNO.GT.TOPE) GO TO 2299
0605 1233 WRITE(1,1235)
0606 1235 FORMAT(2X,"REMEMBER: YOU CAN DETERMINE",/,
0607      *" A TANGENCY POINT BY LOOKING EXCLUSIVELY",/,
0608      *" AT THE VALUES GIVEN BY THE PRINTER FOR",/,
0609      *" THE COLLISION POINTS CORRESPONDING TO",/,
0610      *" DIFFERENT VALUES OF SOME YGNO ADEQUATELY",/,
0611      *" SELECTED IN MANUAL MODE. THEN :",/,
0612      *" IS THIS TRAJECTORY EXCLUSIVELY TO",/,
0613      *" DETERMINE A TANGENCY POINT ?",/,
0614      *" ANSWER: YES=1. , NO=0.",/,
0615      *" (NO MANDATORY, ONLY RECOMMENDED)",/)
0616      READ(1,*) TTDTP
0617      IF(TTDTP.LT.0.5) GO TO 969
0618      PLOT=0.
0619      TAB=0.
0620      PUNCH=0.
0621      GO TO 1030
0622 1240 WRITE(1,1250)
0623 1250 FORMAT(2X,"ANOTHER TRAJECTORY WITH NEW NSSF",/,
0624      *" AND/OR NEW YGNO ? ANSWER: YES=1. , NO=0.",/)
0625      READ(1,*) ATWNY
0626      IF(ATWNY.GT.0.5) GO TO 1211
0627      GO TO 1270
0628 1260 SF=1.
0629      GO TO 1290
0630 1270 WRITE(1,1280)
0631 1280 FORMAT(2X,"ANOTHER TRAJECTORY WITH NEW DATA ?",
0632      *" YES=1. NO=0.",/)
0633      READ(1,*) ATWND
0634      IF(.5.LT.ATWND) GO TO 530
0635      GO TO 2320
0636 1290 DYG=ADYG+ADUYG*ADT
0637      CALL SUDYG(DYG,XGN,AYGN,NS,UN,DXGN,AUXG,AUYG,
0638      *AUXF,AUYF,GLU,CNSS,COTA,CDYG,DUXG,FACK,DUYG,UXF,UYF)
0639      DYG=CDYG
0640      DYGN=DYG
0641      DXG=FACK*(2.*AUXG+DUYG)
0642      XG=AXG+DXG
0643      YG=AYG+DYG
0644      YGN=YG
0645      DXN=DXG-DXGN
0646      XN=AXN+DXN
0647      DT=DXN/UN
0648      T=AT+DT
0649      UXG=AUXG+DUXG
0650      UYG=AUYG+DUYG
0651      U=((UXF-UXG)**2.+(UYF-UYG)**2.）**.5
0652      REYN=U*DIAMG/(10000.*VISC1)
0653      REYNN=(REYN+AREYN)/2.
0654 1300 IF(.5-S2C) 1310,1310,1301
0655 1301 IF(SF-.5) 1820,1820,1811
0656 1310 IF(TSUP.LT.0.5) GO TO 1390
0657      IF(TSUP.GT.2.) GO TO 1370
0658 1320 J=J2+1

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0659	1330	XUEP=X(J)
0660		IF(XGN-XUEP) 1340,1350,1360
0661	1340	J=J+1
0662		DNJ=N-J
0663		IF(DNJ.GT.0.5) GO TO 1330
0664		J=1
0665		GO TO 1330
0666	1350	YUEP=Y(J)
0667		IF(YGN-YUEP) 1520,1460,1470
0668	1360	XUJ1=XUEP
0669		J1=J
0670		YUJ1=Y(J)
0671		J=J-1
0672		XUJ2=X(J)
0673		YUJ2=Y(J)
0674		J2=J
0675		GO TO 1480
0676	1370	IF(YGN) 1380,1440,1450
0677	1380	TSUP=0.
0678		J2=JXD
0679	1390	J=J2-1
0680	1400	XLEP=X(J)
0681		IF(XGN-XLEP) 1410,1420,1430
0682	1410	J=J-1
0683		IF(J.GT.0.5) GO TO 1400
0684		J=N
0685		GO TO 1400
0686	1420	YLEP=Y(J)
0687		IF(YGN-YLEP) 1470,1460,1540
0688	1430	XLJ1=XLEP
0689		J1=J
0690		YLJ1=Y(J)
0691		J=J+1
0692		XLJ2=X(J)
0693		YLJ2=Y(J)
0694		J2=J
0695		GO TO 1500
0696	1440	XGN=0.
0697		GO TO 1460
0698	1450	TSUP=1.
0699		J2=JXD
0700		GO TO 1320
0701	1460	GO TO 1560
0702	1470	GO TO 1820
0703	1480	IF(XUJ2.EQ.XUJ1) GO TO 1820
0704		TERM5=(YUJ2-YUJ1)/(XUJ2-XUJ1)
0705		EXGN=TERM5*(XGN-XUJ1)+YUJ1
0706		IF(YGN-EXGN) 1490,1460,1820
0707	1490	CALL CORTA(XUJ1,YUJ1,XUJ2,YUJ2,AXGN,AYGN,
0708		*XGN,YGN,XCP,YCP)
0709		GO TO 1570
0710	1500	IF(XLJ2.EQ.XLJ1) GO TO 1820
0711		TERM5=(YLJ2-YLJ1)/(XLJ2-XLJ1)
0712		EXGN=TERM5*(XGN-XLJ1)+YLJ1
0713		IF(YGN-EXGN) 1820,1460,1510
0714	1510	CALL CORTA(XLJ1,YLJ1,XLJ2,YLJ2,AXGN,AYGN,
0715		*XGN,YGN,XCP,YCP)
0716		GO TO 1570
0717	1520	JM1=J-1
0718		IF(JM1.GT.0.5) GO TO 1530

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0719		J=N
0720	1530	J=J-1
0721		XUEP2=X(J)
0722		YUEP2=Y(J)
0723		CALL CORTA(XUEP,YUEP,XUEP2,YUEP2,AXGN,AYGN,
0724		*XGN,YGN,XCP,YCP)
0725		GO TO 1570
0726	1540	DNJ=N-J
0727		IF(DNJ.GT.0.5) GO TO 1550
0728		J=1
0729	1550	J=J+1
0730		XLEP2=X(J)
0731		YLEP2=Y(J)
0732		CALL CORTA(XLEP,YLEP,XLEP2,YLEP2,AXGN,AYGN,
0733		*XGN,YGN,XCP,YCP)
0734		GO TO 1570
0735	1560	XCP=XGN
0736		YCP=YGN
0737		BXCP=AXGN
0738		BYCP=AYGN
0739	1570	XGN=XCP
0740		YGN=YCP
0741		IF(AUTOM-.5) 1580,1580,1980
0742	1580	IF(PLOT.LT.0.5) GO TO 1610
0743		CALL DRAW2(C,XD,YXD,XGN,YGN,NXP,NYP)
0744	1590	WRITE(12)1,1,NXP,NYP
0745	1600	WRITE(12)-1,1,9999,5000
0746	1610	WRITE(6,1620)
0747	1620	FORMAT(/,6X,"THE DROPLET HITS THE SURFACE.",/)
0748		TAB=0.
0749		FT=1.
0750		CORTE=1.
0751		GO TO 2060
0752	1630	DT=DTGC
0753		UX=AUXF-AUXG-(ADUXG/2.)*DTGC/ADT
0754		UY=AUYF-AUYG-(ADUYG/2.)*DTGC/ADT
0755		U=SQRT(UX**2.+UY**2.)
0756		REYN=RLAMD*U
0757		REYNM=(REYN+AREYN)/2.
0758		RX=RLAMD*ABS(UX)
0759		RY=RLAMD*ABS(UY)
0760		IF(RX)1658,1658,1637
0761	1637	IF(.1-RX)1639,1639,1638
0762	1638	CDX=24./RX
0763		GO TO 1660
0764	1639	IF(.1-RX)1650,1650,1640
0765	1640	CDX=24./RX+4.5
0766		GO TO 1660
0767	1650	CDX=10.**((3.92494-ALOG10(RX))**2./8.322698-.4038228)
0768	1658	IF(RY)1690,1690,1660
0769	1660	IF(.1-RY)1662,1662,1661
0770	1661	CDY=24./RY
0771		GO TO 1690
0772	1662	IF(.1-RY)1690,1690,1670
0773	1670	CDY=24./RY+4.5
0774		GO TO 1690
0775	1690	CDY=10.**((3.92494-ALOG10(RY))**2./8.322698-.4038228)
0776	1690	IF(UX)1700,1705,1710
0777	1700	FUERX8=-COFUB*CDX*UX**2.
0778		GO TO 1720

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0779	1705	FUERX8=0.
0780		GO TO 1720
0781	1710	FUERX8=COFUB*CDX*UX**2.
0782	1720	IF(UY)1730,1735,1740
0783	1730	FUERY8=-COFUB*CDY*UY**2.
0784		GO TO 1750
0785	1735	FUERY8=0.
0786		GO TO 1750
0787	1740	FUERY8=COFUB*CDY*UY**2.
0788	1750	ACELX=19.1*FUERX8/(DEG*(DIANG/10.))*3.)
0789		ACELY=19.1*FUERY8/(DEG*(DIANG/10.))*3.)
0790		DUXG=ACELX*DT
0791		DUYG=ACELY*DT
0792		DXG=(AUXG+DUXG/2.)*DT
0793		DYG=(AUYG+DUYG/2.)*DT
0794		DXN=UN*DT
0795		DXGN=DXG-DXN
0796		DYGN=DYG
0797		XGN=AXGN+DXGN
0798		YGN=AYGN+DYGN
0799		CALL SIG(NS,XGN,YGN,CNSS,SIG1,SIG2,SIG3,SIG4)
0800		VX=(SIG1-SIG3)*UN/PI
0801		VY=(SIG2-SIG4)*UN/PI
0802		UXF=VX
0803		UYF=VY
0804		XG=AXG+DXG
0805		YG=AYG+DYG
0806		XN=AXN+DXN
0807		T=AT+DT
0808		UXG=AUXG+DUXG
0809		UYG=AUYG+DUYG
0810	1760	IF(XGN-XGNLP)1790,1800,1770
0811	1770	IF(XGN)1780,1780,1820
0812	1780	IF(XI-XGN)1970,1970,1820
0813	1790	XGN=XGNLP
0814	1800	IF(SF.LT.0.5) GO TO 1810
0815		GO TO 1200
0816	1810	SF=1.
0817	1811	KC=XGNLP
0818		YC=YGN+(XGNLP-XGN)*DYGN/DXGN
0819		XGN=XC
0820		YGN=YC
0821	1820	IF(PLOT.LT.0.5) GO TO 2040
0822		CALL DRAW2(C,XD,YD,XGN,YGN,NXP,NYP)
0823		CALL DRAW2(C,XD,YD,AXGN,AYGN,NXPA,NYPA)
0824		IF(NXP.LT.9999.OR.NXP.EQ.9999) GO TO 1830
0825		WRITE(12)-1,1,9999,NYP
0826		GO TO 2040
0827	1830	IF(NYP-8500)1840,1850,1860
0828	1840	IF(NYPA-8500)1870,1940,1910
0829	1850	IF(NYPA-8500)1940,1950,1950
0830	1860	IF(NYPA-8500)1910,1950,1950
0831	1870	IF(NYP-1500)1880,1890,1900
0832	1880	IF(NYPA-1500)1960,1960,1920
0833	1890	IF(NYPA-1500)1960,1960,1940
0834	1900	IF(NYPA-1500)1920,1940,1940
0835	1910	COEFY=(NYPA-8500)/(8500-NYP)
0836		NYP=8500
0837		GO TO 1930
0838	1920	COEFY=(NYPA-1500)/(1500-NYP)

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0839      NYP=1500
0840 1930  NXP=(COEFY*NXP+NXP)/(COEFY+1.)
0841 1940  WRITE(12)1,1,NXP,NYP
0842      GO TO 2040
0843 1950  WRITE(12)-1,1,NXP,8500
0844      GO TO 2040
0845 1960  WRITE(12)-1,1,NXP,1500
0846      GO TO 2040
0847 1970  GO TO 1310
0848 1980  CN=CN+1.
0849      IF(1.5-CN)1990,1990,1580
0850 1990  BASE=((AXCP-XCP)**2.+(YCP-AYCP)**2.)**.5
0851 C      WMDR=6*RLWC*DYGN0*(UN/1000.)/(BASE*100.)
0852      IF(YCP.GT.0.0) GO TO 2020
0853 2000  GO TO 1580
0854 2020  GO TO 1580
0855 2040  IF(2.2-W)1110,1110,2050
0856 2050  IF(COUPLE+1.2-W)1110,1110,2060
0857 2060  IF(TAB.LT.0.5) GO TO 2100
0858      WRITE(6,2070)S,T,XN,XG,XGN,YGN,UXF,UYF,
0859      *UXG,UYG,DXG,DXGN,DYG,REYNM
0860 2070  FORMAT(2X,F6.0,4X,F7.5,2X,F6.1,2X,F7.5,2X,
0861      *F6.1,3X,F7.4,X,F8.2,X,F8.2,X,F8.2,X,
0862      *F8.2,2X,F7.5,2X,F7.2,2X,F8.5,2X,F9.3)
0863      IF(.5-LENS)2080,2080,2100
0864 2080  IF(S-SLFRDM)2100,2090,2090
0865 2090  IF(SLUPTO-S)2100,2110,2110
0866 2100  TAB=ARTAB
0867      IF(FT.LT.0.5) GO TO 1110
0868      IF(AUTOM.GT.0.5) GO TO 2250
0869      GO TO 1240
0870 2110  WRITE(6,2120) T
0871 2120  FORMAT(/,9X,"T=",2X,F15.6)
0872      WRITE(6,2130) XN
0873 2130  FORMAT(9X,"XN=",2X,F15.6)
0874      WRITE(6,2140) XG
0875 2140  FORMAT(9X,"XG=",2X,F15.6)
0876      WRITE(6,2150) XGN
0877 2150  FORMAT(9X,"XGN=",2X,F15.6)
0878      WRITE(6,2160) YGN
0879 2160  FORMAT(9X,"YGN=",2X,F15.6)
0880      WRITE(6,2170) UXF
0881 2170  FORMAT(9X,"UXF=",2X,F15.6)
0882      WRITE(6,2180) UYF
0883 2180  FORMAT(9X,"UYF=",2X,F15.6)
0884      WRITE(6,2190) UXG
0885 2190  FORMAT(9X,"UXG=",2X,F15.6)
0886      WRITE(6,2200) UYG
0887 2200  FORMAT(9X,"UYG=",2X,F15.6)
0888      WRITE(6,2210) DXG
0889 2210  FORMAT(9X,"DXG=",2X,F15.6)
0890      WRITE(6,2220) DXGN
0891 2220  FORMAT(9X,"DXGN=",2X,F15.6)
0892      WRITE(6,2230) DYG
0893 2230  FORMAT(9X,"DYG=",2X,F15.6)
0894      WRITE(6,2240) REYNM
0895 2240  FORMAT(9X,"REYNM=",2X,F15.6,/)
0896      GO TO 2100
0897 2250  DIFCOR=CORTE-ACORTE
0898      ABDICO=ABS(DIFCOR)

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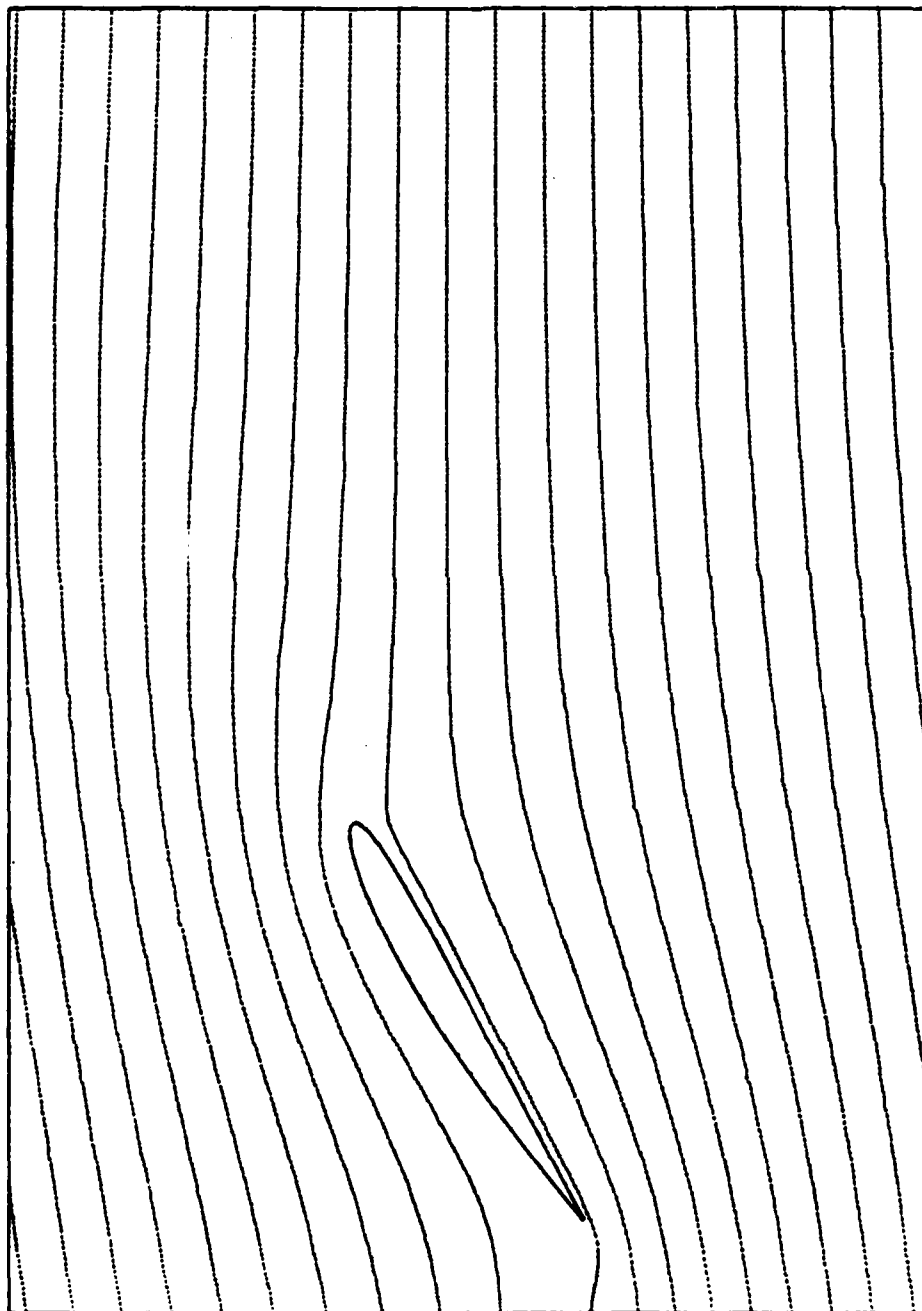
0099      IF(.5-ABDICO)2260,2260,1040
0900 2260  IF(DIFCOR)2270,2270,2280
0901 2270  YGN03=AYGN0
0902      YGN04=YGN0
0903      WRITE(6,2271) YGN03,YGN04
0904 2271  FORMAT(/,6X,"YGN03=",2X,F7.4,2X,"YGN04=",2X,F7.4,/)
0905      GO TO 1040
0906 2280  YGN01=AYGN0
0907      YGN02=YGN0
0908      WRITE(6,2281) YGN01,YGN02
0909 2281  FORMAT(/,6X,"YGN01=",2X,F7.4,2X,"YGN02=",2X,F7.4,/)
0910      GO TO 1040
0911 2290  IF(AUTOM.GT.0.5) GO TO 2310
0912      GO TO 1052
0913 2299  WRITE(1,2300)
0914 2300  FORMAT(2X,"ATTENTION: YGN0 OUT OF THE",/,
0915      *" HORIZONTAL LIMITS OF THE GRAPHIC",/,
0916      *" DO YOU WANT PRINTED RESULTS ?",/,
0917      *" ANSWER: YES=1. , NO=0.",/)
0918      READ(1,*) PR
0919      IF(PR.GT.0.5) GO TO 1030
0920      GO TO 1240
0921 2310  PP=0.
0922      C FUTURE EXPANSION BY HERE.
0923 2320  WRITE(12)-1,0,9999,5000
0924      STOP
0925      END
0926      BLOCKDATA
0927      COMMON/COM2/X(100),Y(100)
0928      END
0929      SUBROUTINE SUDYG(S,P01,P02,P03,P04,P05,P06,P07,
0930      *P08,P09,P10,P11,COT,R,SA01,SA02,SA03,SA04,SA05)
0931      COMMON/COM2/X(100),Y(100)
0932      IF(S)2,1,1
0933      1 IF(.000001-S)5,5,3
0934      2 IF(.000001+S)5,5,4
0935      3 S=.000001
0936      GO TO 5
0937      4 S=-.000001
0938      5 E=S
0939      6 DO 10 I=1,2
0940      SSP02=E+P02
0941      CALL SIG(P03,P01,SSP02,P11,SIG1,SIG2,SIG3,SIG4)
0942      VX=(SIG1-SIG3)*P04/3.141592
0943      VY=(SIG2-SIG4)*P04/3.141592
0944      SA04=VX
0945      SA05=VY
0946      BN=P10+2.*(P04-P06)
0947      CF=P10*(P08-2.*P06+VX)
0948      BNP=ABS(BN**2.-4.*CF)
0949      SA01=(BN-BNP**.5)/2.
0950      SA02=-P05/(2.*P04-2.*P06-SA01)
0951      SA03=(P09-2.*P07-VY)*SA01/(P08-2.*P06+VX)
0952      C=SA02*(2.*P07+SA03)
0953      ERREL=100.*ABS(C/E-1.)
0954      IF(ERREL-COT)19,7,7
0955      7 GO TO (8,9),I
0956      8 C1=C
0957      E=C
0958      GO TO 10

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0959	9	C2=C
0960	10	CONTINUE
0961		DC1S=C1-S
0962		DC2S=C2-S
0963		DC21=C2-C1
0964		DABS=ABS(DC21)-ABS(DC1S)
0965		IF(DC1S)11,11,14
0966	11	IF(DC21)12,12,13
0967	12	IF(DABS)18,18,17
0968	13	IF(DC2S)18,18,17
0969	14	IF(DC21)15,15,16
0970	15	IF(DC2S)17,17,18
0971	16	IF(DABS)18,18,17
0972	17	E=S-DC1S**2./DC21
0973		GO TO 6
0974	18	E=C2+DC21**2./DC1S
0975		GO TO 6
0976	19	R=E
0977		RETURN
0978		END
0979		SUBROUTINE SIG(NT,EF13,EF14,CNSSF,
0980		*SIG1F,SIG2F,SIG3F,SIG4F)
0981		COMMON/COM2/X(100),Y(100)
0982		SIG1F=0.
0983		SIG2F=0.
0984		SIG3F=0.
0985		SIG4F=0.
0986		SC=CNSSF
0987		DO 9 J=1,NT
0988		J1=J
0989		J2=J+1
0990		XJ1=X(J1)
0991		YJ1=Y(J1)
0992		XJ2=X(J2)
0993		YJ2=Y(J2)
0994		PVECT=(XJ2-XJ1)*(EF14-YJ1)-(YJ2-YJ1)*(EF13-XJ1)
0995		IF(PVECT)1,1,2
0996	1	SC=1.
0997	2	CALL STER(EF13,EF14,XJ1,YJ1,XJ2,YJ2,TERX,TERY)
0998		IF(XJ2-XJ1)3,7,4
0999	3	IF((YJ2-YJ1)/(XJ2-XJ1))5,8,6
1000	4	IF((YJ2-YJ1)/(XJ2-XJ1))6,8,5
1001	5	SIG1F=SIG1F+TERX*SC
1002		SIG2F=SIG2F+TERY*SC
1003		GO TO 8
1004	6	SIG3F=SIG3F+TERX*SC
1005		SIG4F=SIG4F+TERY*SC
1006		GO TO 8
1007	7	CONTINUE
1008		IF(YJ2-YJ1)6,8,5
1009	8	SC=CNSSF
1010	9	CONTINUE
1011		RETURN
1012		END
1013		SUBROUTINE STER(EFX,EFY,EFX1,EFY1,EFX2,EFY2,SFX,SFY)
1014		XJ=(EFX1+EFX2)/2.
1015		YJ=(EFY1+EFY2)/2.
1016		PARX=EFX-XJ
1017		PARY=EFY-YJ
1018		PARX2=PARX**2.

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1019	PARY2=PARY**2.	
1020	DENO=PARX2+PARY2	
1021	YMOD=ABS(EFY2-EFY1)	
1022	SFX=PARX*YMOD/DENO	
1023	SFY=PARY*YMOD/DENO	
1024	RETURN	
1025	END	
1026	SUBROUTINE CORTA(X1,Y1,X2,Y2,X3,Y3,X4,Y4,XC,YC)	
1027	IF(X1.EQ.X2) GO TO 1	
1028	IF(X3.EQ.X4) GO TO 2	
1029	TERM1=(Y1-Y2)/(X1-X2)	
1030	TERM2=(Y4-Y3)/(X4-X3)	
1031	TERM3=TERM1*X2-TERM2*X3	
1032	TERM4=TERM1-TERM2	
1033	KC=(TERM3+Y3-Y2)/TERM4	
1034	YC=TERM1*(KC-X2)+Y2	
1035	GO TO 3	
1036	1 KC=X1	
1037	YC=(Y4-Y3)*(KC-X3)/(X4-X3)+Y3	
1038	GO TO 3	
1039	2 KC=X4	
1040	YC=(KC-X1)*(Y2-Y1)/(X2-X1)+Y1	
1041	3 CONTINUE	
1042	RETURN	
1043	END	
1044	SUBROUTINE DRAW(REF,XF,YF,NXPF,NYPF)	
1045	NXPF=500.*(4.5+7.*XF/REF)	
1046	NYPF=500.*(10.+7.*YF/REF)	
1047	RETURN	
1048	END	
1049	SUBROUTINE DRAW2(REF,XDF,YXDF,XF,YF,NXPF,NYPF)	
1050	NXPF=500.*(4.5+7.*(XDF+XF)/REF)	
1051	NYPF=500.*(10.+7.*(YXDF+YF)/REF)	
1052	RETURN	
1053	END	
1054	SUBROUTINE XYUL(XF,YCF,YTF,SINNU,	
1055	*COSNU,XUF,YUF,XLF,YLF)	
1056	YUF=YCF+YTF*COSNU	
1057	XUF=XF-YTF*SINNU	
1058	YLF=YCF-YTF*COSNU	
1059	XLF=XF+YTF*SINNU	
1060	RETURN	
1061	END	
1062	*	

SETS OF TRAJECTORIES



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ANGLE OF ATTACK AT WHICH THE PROFILE IS DEFINED : 0.00 DEGREES.

DEFINITION OF THE PROFILE AT THIS ANGLE OF ATTACK:

ABSCISSES OF THE POINTS LIMITING THE SEGMENTS:

0.00	5.04	10.66	15.08	20.09
23.10	30.10	35.09	40.09	45.07
50.06	55.03	60.01	65.03	70.08
75.14	77.60	80.20	82.72	85.24
87.75	89.01	90.26	91.51	92.75
93.95	94.61	95.23	95.85	96.46
97.07	97.30	97.68	97.99	98.29
98.59	98.74	98.89	99.04	99.18
99.33	99.41	99.49	99.57	99.65
99.73	99.81	99.88	99.95	100.00
100.00	99.87	99.77	99.67	99.58
99.48	99.39	99.29	99.20	99.11
98.94	98.78	98.61	98.45	98.29
97.96	97.64	97.32	97.00	96.68
96.04	95.40	94.77	94.14	93.51
92.25	90.99	89.74	88.49	87.25
84.76	82.20	79.00	77.32	74.86
69.92	64.97	59.99	54.97	49.94
44.93	39.91	34.91	29.90	24.90
19.91	14.92	9.94	4.96	0.00

ORDENATES OF THE POINTS LIMITING THE SEGMENTS:

-0.09	-0.28	-0.47	-0.66	-0.85
-1.05	-1.25	-1.45	-1.64	-1.84
-2.03	-2.20	-2.35	-2.49	-2.63
-2.74	-2.77	-2.80	-2.80	-2.78
-2.73	-2.68	-2.63	-2.55	-2.46
-2.36	-2.27	-2.19	-2.09	-1.99
-1.86	-1.79	-1.71	-1.62	-1.53
-1.42	-1.36	-1.29	-1.22	-1.14
-1.05	-1.00	-0.94	-0.88	-0.81
-0.73	-0.64	-0.53	-0.38	-0.21
-0.11	-0.40	-0.56	-0.69	-0.80
0.09	0.98	1.06	1.14	1.21
1.33	1.44	1.54	1.63	1.72
1.89	2.05	2.19	2.33	2.46
2.60	2.92	3.12	3.31	3.49
3.82	4.11	4.38	4.62	4.84
5.22	5.54	5.80	6.01	6.17
6.38	6.43	6.35	6.17	5.91
5.59	5.20	4.75	4.25	3.69
3.00	2.41	1.76	1.02	0.09

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ACTUAL ANGLE OF ATTACK: 30.00 DEGREES.

DEFINITION OF THE PROFILE AT THIS ANGLE OF ATTACK:

ABSCISSES OF THE POINTS LIMITING THE SEGMENTS:

-86.81	-82.26	-77.81	-73.37	-68.93
-64.50	-60.07	-55.63	-51.23	-46.81
-42.49	-38.06	-33.61	-29.20	-24.75
-20.32	-15.91	-11.50	-7.12	-2.75
-9.41	-5.04	-0.64	3.81	8.21
-4.19	-0.69	3.20	7.71	12.23
-1.77	1.56	5.31	9.09	13.88
-0.67	3.37	7.48	10.39	15.30
-0.21	5.17	9.13	11.59	16.66
-0.03	6.91	10.00	12.61	17.86
-0.16	8.47	11.04	13.49	18.93
-1.06	10.18	12.36	14.22	19.84
-1.74	11.94	13.91	14.82	20.51
-2.87	13.23	15.58	15.32	21.07
-4.56	14.66	17.25	15.89	21.53
-6.79	16.01	18.91	16.43	22.02
-9.57	18.28	20.55	16.90	22.47
-13.40	22.71	24.99	17.35	22.90
-18.63	28.60	30.91	17.79	23.31
-25.06	35.03	37.00	18.23	23.71
-32.49	42.00	43.00	18.66	24.10
-40.81	49.51	49.00	19.09	24.49
-49.00	57.56	55.00	19.52	24.88
-57.14	66.15	61.00	19.95	25.27
-65.23	75.28	67.00	20.38	25.66
-73.28	84.94	73.00	20.81	26.05
-81.30	95.13	79.00	21.24	26.44
-89.30	105.85	85.00	21.67	26.83
-97.28	117.10	91.00	22.10	27.22
-105.25	128.87	97.00	22.53	27.61
-113.21	141.16	103.00	22.96	28.00
-121.16	153.97	109.00	23.39	28.39
-129.10	167.30	115.00	23.82	28.78
-137.03	181.15	121.00	24.25	29.17
-144.95	195.52	127.00	24.68	29.56
-152.86	210.41	133.00	25.11	29.95
-160.76	225.82	139.00	25.54	30.34
-168.65	241.85	145.00	25.97	30.73
-176.53	258.50	151.00	26.40	31.12
-184.41	275.77	157.00	26.83	31.51
-192.28	293.66	163.00	27.26	31.90
-200.15	312.17	169.00	27.69	32.29
-208.02	331.30	175.00	28.12	32.68
-215.89	351.05	181.00	28.55	33.07
-223.76	371.42	187.00	28.98	33.46
-231.63	392.41	193.00	29.41	33.85
-239.50	414.02	199.00	29.84	34.24
-247.37	436.25	205.00	30.27	34.63
-255.24	459.10	211.00	30.70	35.02
-263.11	482.57	217.00	31.13	35.41
-270.98	506.66	223.00	31.56	35.80
-278.85	531.37	229.00	31.99	36.19
-286.72	556.70	235.00	32.42	36.58
-294.59	582.65	241.00	32.85	36.97
-302.46	609.22	247.00	33.28	37.36
-310.33	636.41	253.00	33.71	37.75
-318.20	664.22	259.00	34.14	38.14
-326.07	692.65	265.00	34.57	38.53
-333.94	721.70	271.00	35.00	38.92
-341.81	751.37	277.00	35.43	39.31
-349.68	781.66	283.00	35.86	39.70
-357.55	812.57	289.00	36.29	40.09
-365.42	844.10	295.00	36.72	40.48
-373.29	876.25	301.00	37.15	40.87
-381.16	909.02	307.00	37.58	41.26
-389.03	942.41	313.00	38.01	41.65
-396.90	976.42	319.00	38.44	42.04
-404.77	1011.05	325.00	38.87	42.43
-412.64	1046.30	331.00	39.30	42.82
-420.51	1082.17	337.00	39.73	43.21
-428.38	1118.66	343.00	40.16	43.60
-436.25	1155.77	349.00	40.59	43.99
-444.12	1193.50	355.00	41.02	44.38
-451.99	1231.85	361.00	41.45	44.77
-459.86	1270.82	367.00	41.88	45.16
-467.73	1310.41	373.00	42.31	45.55
-475.60	1350.62	379.00	42.74	45.94
-483.47	1391.45	385.00	43.17	46.33
-491.34	1432.90	391.00	43.60	46.72
-499.21	1474.97	397.00	44.03	47.11
-507.08	1517.66	403.00	44.46	47.50
-514.95	1560.97	409.00	44.89	47.89
-522.82	1604.90	415.00	45.32	48.28
-530.69	1649.45	421.00	45.75	48.67
-538.56	1694.62	427.00	46.18	49.06
-546.43	1740.41	433.00	46.61	49.45
-554.30	1786.82	439.00	47.04	49.84
-562.17	1833.85	445.00	47.47	50.23
-570.04	1881.50	451.00	47.90	50.62
-577.91	1929.77	457.00	48.33	51.01
-585.78	1978.66	463.00	48.76	51.40
-593.65	2028.17	469.00	49.19	51.79
-601.52	2078.30	475.00	49.62	52.18
-609.39	2129.05	481.00	50.05	52.57
-617.26	2180.42	487.00	50.48	52.96
-625.13	2232.41	493.00	50.91	53.35
-633.00	2285.02	499.00	51.34	53.74
-640.87	2338.25	505.00	51.77	54.13
-648.74	2392.10	511.00	52.20	54.52
-656.61	2446.57	517.00	52.63	54.91
-664.48	2501.66	523.00	53.06	55.30
-672.35	2557.37	529.00	53.49	55.69
-680.22	2613.70	535.00	53.92	56.08
-688.09	2670.65	541.00	54.35	56.47
-695.96	2728.22	547.00	54.78	56.86
-703.83	2786.41	553.00	55.21	57.25
-711.70	2845.22	559.00	55.64	57.64
-719.57	2904.65	565.00	56.07	58.03
-727.44	2964.70	571.00	56.50	58.42
-735.31	3025.37	577.00	56.93	58.81
-743.18	3086.66	583.00	57.36	59.20
-751.05	3148.57	589.00	57.79	59.59
-758.92	3211.10	595.00	58.22	59.98
-766.79	3274.25	601.00	58.65	60.37
-774.66	3338.02	607.00	59.08	60.76
-782.53	3402.41	613.00	59.51	61.15
-790.40	3467.42	619.00	59.94	61.54
-798.27	3533.05	625.00	60.37	61.93
-806.14	3609.30	631.00	60.80	62.32
-814.01	3686.17	637.00	61.23	62.71
-821.88	3763.66	643.00	61.66	63.10
-829.75	3841.77	649.00	62.09	63.49
-837.62	3920.50	655.00	62.52	63.88
-845.49	3999.85	661.00	62.95	64.27
-853.36	4079.82	667.00	63.38	64.66
-861.23	4160.41	673.00	63.81	65.05
-869.10	4241.62	679.00	64.24	65.44
-876.97	4323.45	685.00	64.67	65.83
-884.84	4405.90	691.00	65.10	66.22
-892.71	4488.97	697.00	65.53	66.61
-900.58	4572.66	703.00	65.96	67.00
-908.45	4656.97	709.00	66.39	67.39
-916.32	4741.90	715.00	66.82	67.78
-924.19	4827.45	721.00	67.25	68.17
-932.06	4913.62	727.00	67.68	68.56
-939.93	5000.41	733.00	68.11	68.95
-947.80	5087.82	739.00	68.54	69.34
-955.67	5175.85	745.00	68.97	69.73
-963.54	5264.50	751.00	69.40	70.12
-971.41	5353.77	757.00	69.83	70.51
-979.28	5443.66	763.00	70.26	70.90
-987.15	5534.17	769.00	70.69	71.29
-995.02	5625.30	775.00	71.12	71.68
-1002.89	5717.05	781.00	71.55	72.07
-1010.76	5809.52	787.00	71.98	72.46
-1018.63	5902.61	793.00	72.41	72.85
-1026.50	5996.32	799.00	72.84	73.24
-1034.37	6090.65	805.00	73.27	73.63
-1042.24	6185.60	811.00	73.70	74.02
-1050.11	6281.17	817.00	74.13	74.41
-1057.98	6377.36	823.00	74.56	74.80
-1065.85	6474.17	829.00	74.99	75.19
-1073.72	6571.60	835.00	75.42	75.58
-1081.59	6669.65	841.00	75.85	75.97
-1089.46	6768.32	847.00	76.28	76.36
-1097.33	6867.61	853.00	76.71	76.75
-1105.20	6967.52	859.00	77.14	77.14
-1113.07	7068.05	865.00	77.57	77.53
-1120.94	7169.20	871.00	78.00	77.92
-1128.81	7270.97	877.00	78.43	78.31
-1136.68	7373.36	883.00	78.86	78.70
-1144.55	7476.37	889.00	79.29	79.09
-1152.42	7580.00	895.00	79.72	79.48
-1160.29	7684.25	901.00	80.15	79.87
-1168.16	7789.12	907.00	80.58	80.26
-1176.03	7894.61	913.00	81.01	80.65
-1183.90	8000.72	919.00	81.44	81.04
-1191.77	8107.45	925.00	81.87	81.43
-1199.64	8214.80	931.00	82.30	81.82
-1207.51	8322.77	937.00	82.73	82.21
-1215.38	8431.36	943.00	83.16	82.60
-1223.25	8540.57	949.00	83.59	82.99
-1231.12	8650.40	955.00	84.02	83.38
-1238.99	8760.85	961.00	84.45	83.77
-1246.86	8871.92	967.00	84.88	84.16
-1254.73	8983.61	973.00	85.31	84.55
-1262.60	9095.92	979.00	85.74	84.94
-1270.47	9208.85	985.00	86.17	85.33
-1278.34	9322.40	991.00	86.60	85.72
-1286.21	9436.57	997.00	87.03	86.11
-1294.08	9551.36	1003.00	87.46	86.50
-1301.95	9666.77	1009.00	87.89	86.89
-1309.82	9782.80	1015.00	88.32	87.28
-1317.69	9899.45	1021.00	88.75	87.67
-1325.56	10016.72	1027.00	89.18	88.06
-1333.43	10134.61	1033.00	89.61	88.45
-1341.30	10253.12	1039.00	90.04	88.84
-1349.17	10372.25	1045.00	90.47	89.23
-1357.04	10491.90	1051.00	90.90	89.62
-1364.91	10612.17	1057.00	91.33	90.01
-1372.78	10733.06	1063.00	91.76	90.40
-1380.65	10854.57	1069.00	92.19	90.79
-1388.52	10976.70	1075.00	92.62	91.18
-1396.39	11099.45	1081.00	93.05	91.57
-1404.26	11222.82	1087.00	93.48	91.96
-1412.13	11346.81	1093.00	93.91	92.35
-1420.00	11471.42	1099.00	94.34	92.74
-1427.87	11596.65	1105.00	94.77	93.13
-1435.74	11722.50	1111.00	95.20	93.52
-1443.61	11849.07	1117.00	95.63	93.91
-1451.48	11976.26	1123.00	96.06	94.30
-1459.35	12104.07	1129.00	96.49	94.69
-1467.22	12232.50	1135.00	96.92	95.08
-1475.09	12361.55	1141.00	97.35	95.47
-1482.96	12491.22	1147.00	97.78	95.86
-1490.83	12621.51	1153.00	98.21	96.

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C	MS	UNK	DEPIB	ETAIB	RLUC	DIANC	DEC	DEHIC	ROUE	KCHG	DYCHG	0	COTA				
100.0	99.	10.	7650.	1.20	.635	40.0	1.00	.917	.750	500.	10.	100.	.010000				
AVE	YCHO	LEMS	BLEROM	BLUPTO	COUPLE	0	0	PROFILE	ALF	ALFA	YCHON						
0.	-120.	0.	0.	0.	0.	0.	.00230	2409	0.0	30.0	120.0						
AUXILIAR PARAMETERS CALCULATED BY AIP07 PROGRAM:																	
UN	VIACI	ETAS	SEP	GLU	KCHLP	BU	COTO	BLAND	COFUR	0ALF							
314.00	.1457	17.07	100.00	1005.41	-107.7	1.	.0001000	.027449	.770664	30.0							
YCHO=-120	H0SF=0.000																
0	T	XN	KC	KCN	YCN	UNF	UYF	UYC	DXC	DXCN	DYC	REYNR					
KCHLP REACHED																	
YCHO=-110	H0SF=0.000																
0	T	XN	KC	KCN	YCN	UNF	UYF	UYC	DXC	DXCN	DYC	REYNR					
KCHLP REACHED																	
YCHO=-100	H0SF=0.000																
0	T	XN	KC	KCN	YCN	UNF	UYF	UYC	DXC	DXCN	DYC	REYNR					
KCHLP REACHED																	
YCHO=-90	H0SF=0.000																
0	T	XN	KC	KCN	YCN	UNF	UYF	UYC	DXC	DXCN	DYC	REYNR					

FILED

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YCH0- -30.	MSBP= 0.000				
S	T	XM	XC	XCM	YCN
				UXF	UYF
				UXC	UYC
				DXC	DXN
				DXC	DXN
				BYN	BYN
XCHLP REACHED					
YCH0- -20.	MSBP= 0.000				
S	T	XM	XC	XCM	YCN
				UXF	UYF
				UXC	UYC
				DXC	DXN
				DXC	DXN
				BYN	BYN
XCHLP REACHED					
YCH0- -10.	MSBP= 0.000				
S	T	XM	XC	XCM	YCN
				UXF	UYF
				UXC	UYC
				DXC	DXN
				DXC	DXN
				BYN	BYN
XCHLP REACHED					
YCH0- 0.0	MSBP= 0.000				
S	T	XM	XC	XCM	YCN
				UXF	UYF
				UXC	UYC
				DXC	DXN
				DXC	DXN
				BYN	BYN
XCHLP REACHED					
YCH0- 10.0	MSBP= 0.000				
S	T	XM	XC	XCM	YCN
				UXF	UYF
				UXC	UYC
				DXC	DXN
				DXC	DXN
				BYN	BYN
XCHLP REACHED					
YCH0- 20.0	MSBP= 0.000				
S	T	XM	XC	XCM	YCN
				UXF	UYF
				UXC	UYC
				DXC	DXN
				DXC	DXN
				BYN	BYN
XCHLP REACHED					

INTA		N.º										Pág. 54																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																												
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S T XM XG		YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN	YCN</

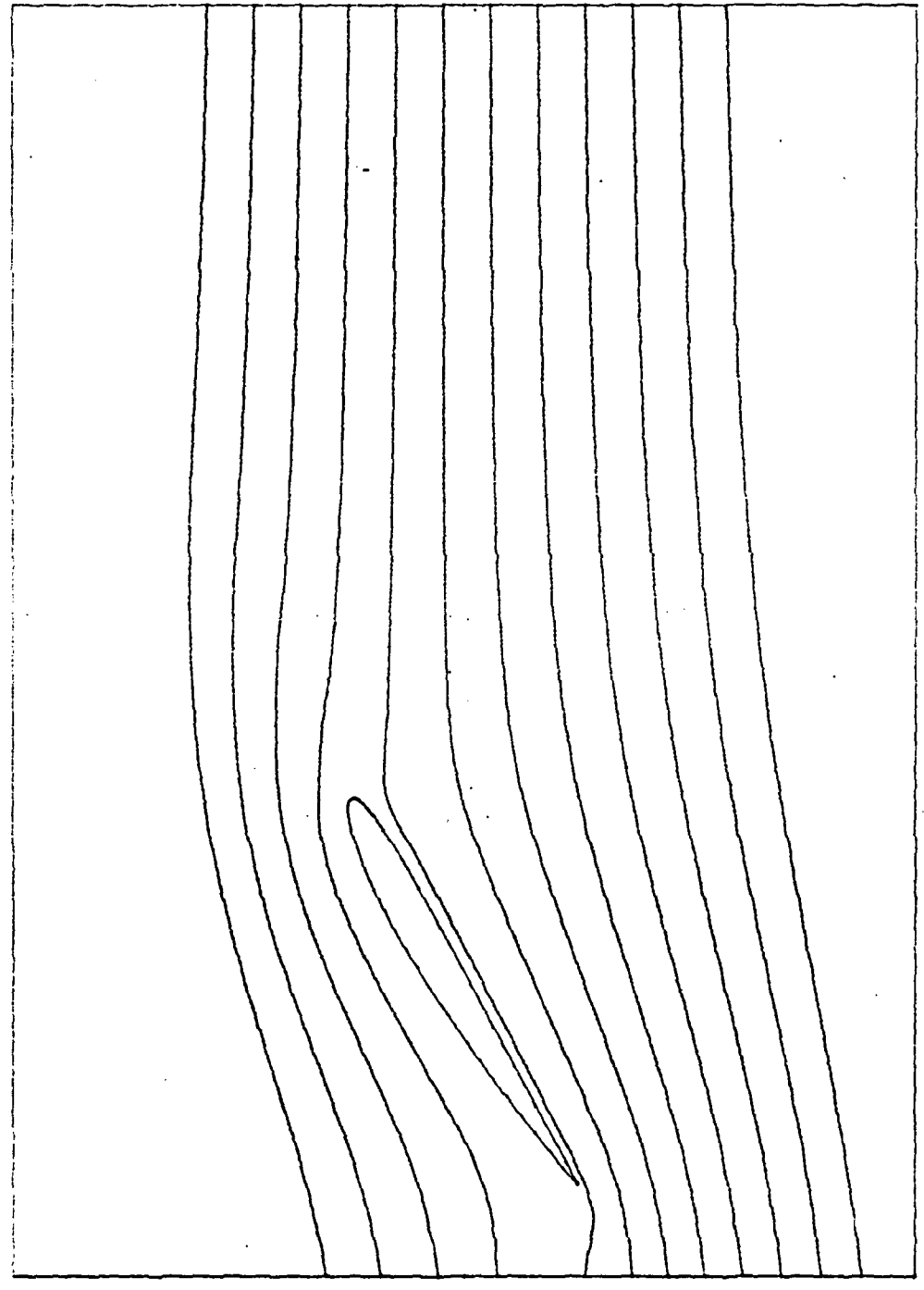
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YCH0- 00.0	H03F- 0.000																						
B	T	HN	XC	XGN	UNF	UYF	UXG	UYG	DXG	DXGN	DYG	REYNN											
XGNLP REACHED																							
YCH0- 90.0	H03F- 0.000																						
B	T	HN	XC	XGN	UNF	UYF	UXG	UYG	DXG	DXGN	DYG	REYNN											
XGNLP REACHED																							
YCH0- 100	H03F- 0.000																						
B	T	HN	XC	XGN	UNF	UYF	UXG	UYG	DXG	DXGN	DYG	REYNN											
XGNLP REACHED																							

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ANGLE OF ATTACK AT WHICH THE PROFILE IS DEFINED : 0.00 DEGREES.

DEFINITION OF THE PROFILE AT THIS ANGLE OF ATTACK:

ABSCISSES OF THE POINTS LIMITING THE SECRETS:

0.00	5.00	10.00	15.00	20.00
25.00	30.00	35.00	40.00	45.00
50.00	55.00	60.00	65.00	70.00
75.00	80.00	85.00	90.00	95.00
100.00	105.00	110.00	115.00	120.00
125.00	130.00	135.00	140.00	145.00
150.00	155.00	160.00	165.00	170.00
175.00	180.00	185.00	190.00	195.00
200.00	205.00	210.00	215.00	220.00
225.00	230.00	235.00	240.00	245.00
250.00	255.00	260.00	265.00	270.00
275.00	280.00	285.00	290.00	295.00
300.00	305.00	310.00	315.00	320.00
325.00	330.00	335.00	340.00	345.00
350.00	355.00	360.00	365.00	370.00
375.00	380.00	385.00	390.00	395.00
400.00	405.00	410.00	415.00	420.00
425.00	430.00	435.00	440.00	445.00
450.00	455.00	460.00	465.00	470.00
475.00	480.00	485.00	490.00	495.00
500.00	505.00	510.00	515.00	520.00
525.00	530.00	535.00	540.00	545.00
550.00	555.00	560.00	565.00	570.00
575.00	580.00	585.00	590.00	595.00
600.00	605.00	610.00	615.00	620.00
625.00	630.00	635.00	640.00	645.00
650.00	655.00	660.00	665.00	670.00
675.00	680.00	685.00	690.00	695.00
700.00	705.00	710.00	715.00	720.00
725.00	730.00	735.00	740.00	745.00
750.00	755.00	760.00	765.00	770.00
775.00	780.00	785.00	790.00	795.00
800.00	805.00	810.00	815.00	820.00
825.00	830.00	835.00	840.00	845.00
850.00	855.00	860.00	865.00	870.00
875.00	880.00	885.00	890.00	895.00
900.00	905.00	910.00	915.00	920.00
925.00	930.00	935.00	940.00	945.00
950.00	955.00	960.00	965.00	970.00
975.00	980.00	985.00	990.00	995.00
1000.00	1005.00	1010.00	1015.00	1020.00

ORDINATES OF THE POINTS LIMITING THE SECRETS:

-0.02	-0.28	-0.47	-0.66	-0.85
-1.05	-1.25	-1.45	-1.65	-1.85
-2.00	-2.20	-2.35	-2.50	-2.65
-2.70	-2.85	-3.00	-3.15	-3.30
-3.45	-3.60	-3.75	-3.90	-4.05
-4.20	-4.35	-4.50	-4.65	-4.80
-5.00	-5.15	-5.30	-5.45	-5.60
-5.80	-5.95	-6.10	-6.25	-6.40
-6.60	-6.75	-6.90	-7.05	-7.20
-7.40	-7.55	-7.70	-7.85	-8.00
-8.20	-8.35	-8.50	-8.65	-8.80
-9.00	-9.15	-9.30	-9.45	-9.60
-9.80	-9.95	-10.10	-10.25	-10.40
-10.60	-10.75	-10.90	-11.05	-11.20
-11.40	-11.55	-11.70	-11.85	-12.00
-12.20	-12.35	-12.50	-12.65	-12.80
-13.00	-13.15	-13.30	-13.45	-13.60
-13.80	-13.95	-14.10	-14.25	-14.40
-14.60	-14.75	-14.90	-15.05	-15.20
-15.40	-15.55	-15.70	-15.85	-16.00
-16.20	-16.35	-16.50	-16.65	-16.80
-17.00	-17.15	-17.30	-17.45	-17.60
-17.80	-17.95	-18.10	-18.25	-18.40
-18.60	-18.75	-18.90	-19.05	-19.20
-19.40	-19.55	-19.70	-19.85	-20.00
-20.20	-20.35	-20.50	-20.65	-20.80
-21.00	-21.15	-21.30	-21.45	-21.60
-21.80	-21.95	-22.10	-22.25	-22.40
-22.60	-22.75	-22.90	-23.05	-23.20
-23.40	-23.55	-23.70	-23.85	-24.00
-24.20	-24.35	-24.50	-24.65	-24.80
-25.00	-25.15	-25.30	-25.45	-25.60
-25.80	-25.95	-26.10	-26.25	-26.40
-26.60	-26.75	-26.90	-27.05	-27.20
-27.40	-27.55	-27.70	-27.85	-28.00
-28.20	-28.35	-28.50	-28.65	-28.80
-29.00	-29.15	-29.30	-29.45	-29.60
-29.80	-29.95	-30.10	-30.25	-30.40
-30.60	-30.75	-30.90	-31.05	-31.20
-31.40	-31.55	-31.70	-31.85	-32.00
-32.20	-32.35	-32.50	-32.65	-32.80
-33.00	-33.15	-33.30	-33.45	-33.60
-33.80	-33.95	-34.10	-34.25	-34.40
-34.60	-34.75	-34.90	-35.05	-35.20
-35.40	-35.55	-35.70	-35.85	-36.00
-36.20	-36.35	-36.50	-36.65	-36.80
-37.00	-37.15	-37.30	-37.45	-37.60
-37.80	-37.95	-38.10	-38.25	-38.40
-38.60	-38.75	-38.90	-39.05	-39.20
-39.40	-39.55	-39.70	-39.85	-40.00
-40.20	-40.35	-40.50	-40.65	-40.80
-41.00	-41.15	-41.30	-41.45	-41.60
-41.80	-41.95	-42.10	-42.25	-42.40
-42.60	-42.75	-42.90	-43.05	-43.20
-43.40	-43.55	-43.70	-43.85	-44.00
-44.20	-44.35	-44.50	-44.65	-44.80
-45.00	-45.15	-45.30	-45.45	-45.60
-45.80	-45.95	-46.10	-46.25	-46.40
-46.60	-46.75	-46.90	-47.05	-47.20
-47.40	-47.55	-47.70	-47.85	-48.00
-48.20	-48.35	-48.50	-48.65	-48.80
-49.00	-49.15	-49.30	-49.45	-49.60
-49.80	-49.95	-50.10	-50.25	-50.40
-50.60	-50.75	-50.90	-51.05	-51.20
-51.40	-51.55	-51.70	-51.85	-52.00
-52.20	-52.35	-52.50	-52.65	-52.80
-53.00	-53.15	-53.30	-53.45	-53.60
-53.80	-53.95	-54.10	-54.25	-54.40
-54.60	-54.75	-54.90	-55.05	-55.20
-55.40	-55.55	-55.70	-55.85	-56.00
-56.20	-56.35	-56.50	-56.65	-56.80
-57.00	-57.15	-57.30	-57.45	-57.60
-57.80	-57.95	-58.10	-58.25	-58.40
-58.60	-58.75	-58.90	-59.05	-59.20
-59.40	-59.55	-59.70	-59.85	-60.00
-60.20	-60.35	-60.50	-60.65	-60.80
-61.00	-61.15	-61.30	-61.45	-61.60
-61.80	-61.95	-62.10	-62.25	-62.40
-62.60	-62.75	-62.90	-63.05	-63.20
-63.40	-63.55	-63.70	-63.85	-64.00
-64.20	-64.35	-64.50	-64.65	-64.80
-65.00	-65.15	-65.30	-65.45	-65.60
-65.80	-65.95	-66.10	-66.25	-66.40
-66.60	-66.75	-66.90	-67.05	-67.20
-67.40	-67.55	-67.70	-67.85	-68.00
-68.20	-68.35	-68.50	-68.65	-68.80
-69.00	-69.15	-69.30	-69.45	-69.60
-69.80	-69.95	-70.10	-70.25	-70.40
-70.60	-70.75	-70.90	-71.05	-71.20
-71.40	-71.55	-71.70	-71.85	-72.00
-72.20	-72.35	-72.50	-72.65	-72.80
-73.00	-73.15	-73.30	-73.45	-73.60
-73.80	-73.95	-74.10	-74.25	-74.40
-74.60	-74.75	-74.90	-75.05	-75.20
-75.40	-75.55	-75.70	-75.85	-76.00
-76.20	-76.35	-76.50	-76.65	-76.80
-77.00	-77.15	-77.30	-77.45	-77.60
-77.80	-77.95	-78.10	-78.25	-78.40
-78.60	-78.75	-78.90	-79.05	-79.20
-79.40	-79.55	-79.70	-79.85	-80.00
-80.20	-80.35	-80.50	-80.65	-80.80
-81.00	-81.15	-81.30	-81.45	-81.60
-81.80	-81.95	-82.10	-82.25	-82.40
-82.60	-82.75	-82.90	-83.05	-83.20
-83.40	-83.55	-83.70	-83.85	-84.00
-84.20	-84.35	-84.50	-84.65	-84.80
-85.00	-85.15	-85.30	-85.45	-85.60
-85.80	-85.95	-86.10	-86.25	-86.40
-86.60	-86.75	-86.90	-87.05	-87.20
-87.40	-87.55	-87.70	-87.85	-88.00
-88.20	-88.35	-88.50	-88.65	-88.80
-89.00	-89.15	-89.30	-89.45	-89.60
-89.80	-89.95	-90.10	-90.25	-90.40
-90.60	-90.75	-90.90	-91.05	-91.20
-91.40	-91.55	-91.70	-91.85	-92.00
-92.20	-92.35	-92.50	-92.65	-92.80
-93.00	-93.15	-93.30	-93.45	-93.60
-93.80	-93.95	-94.10	-94.25	-94.40
-94.60	-94.75	-94.90	-95.05	-95.20
-95.40	-95.55	-95.70	-95.85	-96.00
-96.20	-96.35	-96.50	-96.65	-96.80
-97.00	-97.15	-97.30	-97.45	-97.60
-97.80	-97.95	-98.10	-98.25	-98.40
-98.60	-98.75	-98.90	-99.05	-99.20
-99.40	-99.55	-99.70	-99.85	-100.00

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ACTUAL ANGLE OF ATTACK: 30.00 DEGREES.

DEFINITION OF THE PROFILE AT THIS ANGLE OF ATTACK:

ABSCISSES OF THE POINTS LIMITING THE SEGMENTS:

-04.81	-02.24	-27.81	-23.37	-64.93
-64.59	-59.07	-55.45	-51.23	-46.91
-42.48	-38.06	-33.41	-29.26	-24.75
-26.32	-18.36	-15.91	-13.72	-11.55
-9.41	-8.34	-7.28	-6.24	-5.21
-4.35	-3.59	-3.20	-2.71	-2.23
-1.77	-1.34	-1.31	-1.09	0.00
0.67	0.37	0.48	0.35	0.30
2.21	1.17	1.13	0.99	0.96
3.03	0.91	0.00	0.01	0.16
4.16	0.97	0.64	0.79	0.93
5.06	1.18	1.30	1.42	1.54
6.74	1.94	2.13	2.32	2.51
8.27	3.23	3.58	3.93	4.22
9.54	5.66	6.25	6.89	7.53
10.78	10.01	11.23	12.43	13.62
15.97	18.28	20.55	22.60	25.02
29.40	33.71	37.99	42.25	46.47
50.65	58.00	60.91	62.99	67.04
71.66	75.05	76.00	82.91	86.91

ORDINATES OF THE POINTS LIMITING THE SEGMENTS:

-09.49	-07.21	-44.86	-42.52	-90.18
-37.81	-35.51	-33.17	-30.66	-28.54
-26.21	-23.87	-21.52	-19.13	-16.72
-14.58	-12.05	-11.01	-10.55	-9.28
-7.97	-7.31	-6.63	-5.95	-5.26
-4.32	-4.14	-3.76	-3.37	-2.97
-1.56	-2.34	-2.12	-1.99	-1.46
1.42	1.29	1.16	1.02	0.99
7.73	6.4	5.5	4.6	3.6
25	13	6.90	1.6	5.1
52	86	69	92	100
103	106	100	110	112
114	115	115	115	115
114	111	108	103	99
47	25	41	46	50
95	42	42	41	40
238	235	226	212	201
1143	1143	1139	1136	1133
2218	2218	2212	2206	2204
3607	3594	3585	3570	3560

▼ L'Impressione del 1917 ▼

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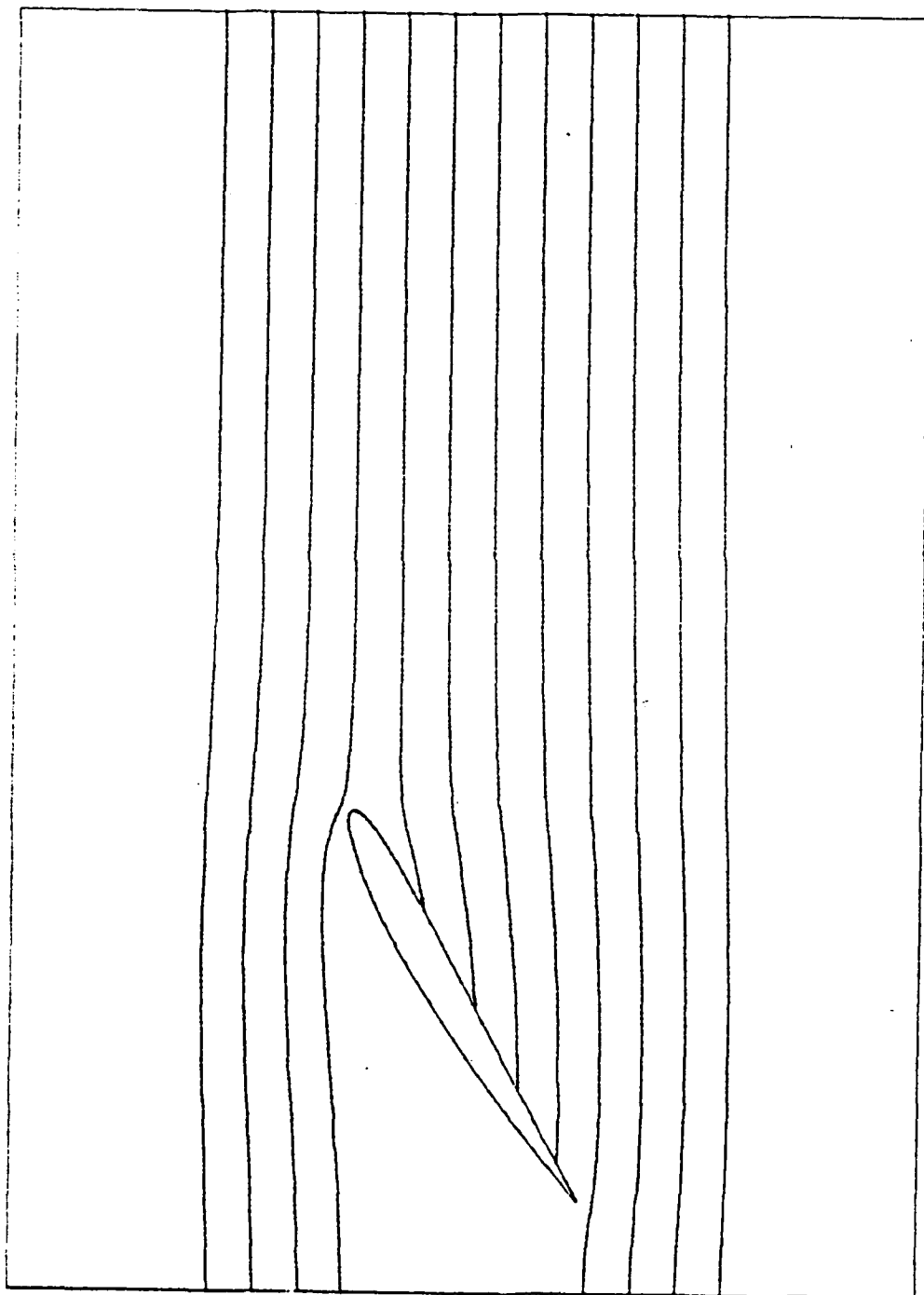
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ANGLE OF ATTACK AT WHICH THE PROFILE IS DEFINED : 0.00 DEGREES.

DEFINITION OF THE PROFILE AT THIS ANGLE OF ATTACK:

ABSCISSAS OF THE POINTS LIMITING THE SEGMENTS:

0.00	5.04	10.06	15.08	20.09
25.10	30.10	35.09	40.09	45.07
50.04	55.03	60.01	65.03	70.08
75.15	80.20	85.24	90.27	95.26
100.20	105.16	110.13	115.11	120.08
125.04	130.01	135.00	140.00	145.00
150.00	155.00	160.00	165.00	170.00
175.00	180.00	185.00	190.00	195.00
200.00	205.00	210.00	215.00	220.00
225.00	230.00	235.00	240.00	245.00
250.00	255.00	260.00	265.00	270.00
275.00	280.00	285.00	290.00	295.00
300.00	305.00	310.00	315.00	320.00
325.00	330.00	335.00	340.00	345.00
350.00	355.00	360.00	365.00	370.00
375.00	380.00	385.00	390.00	395.00
400.00	405.00	410.00	415.00	420.00
425.00	430.00	435.00	440.00	445.00
450.00	455.00	460.00	465.00	470.00
475.00	480.00	485.00	490.00	495.00
500.00	505.00	510.00	515.00	520.00
525.00	530.00	535.00	540.00	545.00
550.00	555.00	560.00	565.00	570.00
575.00	580.00	585.00	590.00	595.00
600.00	605.00	610.00	615.00	620.00
625.00	630.00	635.00	640.00	645.00
650.00	655.00	660.00	665.00	670.00
675.00	680.00	685.00	690.00	695.00
700.00	705.00	710.00	715.00	720.00
725.00	730.00	735.00	740.00	745.00
750.00	755.00	760.00	765.00	770.00
775.00	780.00	785.00	790.00	795.00
800.00	805.00	810.00	815.00	820.00
825.00	830.00	835.00	840.00	845.00
850.00	855.00	860.00	865.00	870.00
875.00	880.00	885.00	890.00	895.00
900.00	905.00	910.00	915.00	920.00
925.00	930.00	935.00	940.00	945.00
950.00	955.00	960.00	965.00	970.00
975.00	980.00	985.00	990.00	995.00
1000.00	1005.00	1010.00	1015.00	1020.00

ORDINATES OF THE POINTS LIMITING THE SEGMENTS:

-0.00	-1.28	-2.47	-3.66	-4.85
-5.04	-6.25	-7.45	-8.64	-9.83
-10.06	-11.25	-12.45	-13.64	-14.83
-15.08	-16.25	-17.45	-18.64	-19.83
-20.09	-21.25	-22.45	-23.64	-24.83
-25.10	-26.25	-27.45	-28.64	-29.83
-30.10	-31.25	-32.45	-33.64	-34.83
-35.09	-36.25	-37.45	-38.64	-39.83
-40.09	-41.25	-42.45	-43.64	-44.83
-45.07	-46.25	-47.45	-48.64	-49.83
-50.04	-51.25	-52.45	-53.64	-54.83
-55.03	-56.25	-57.45	-58.64	-59.83
-60.01	-61.25	-62.45	-63.64	-64.83
-65.03	-66.25	-67.45	-68.64	-69.83
-70.08	-71.25	-72.45	-73.64	-74.83
-75.15	-76.25	-77.45	-78.64	-79.83
-80.20	-81.25	-82.45	-83.64	-84.83
-85.24	-86.25	-87.45	-88.64	-89.83
-90.27	-91.25	-92.45	-93.64	-94.83
-95.26	-96.25	-97.45	-98.64	-99.83
-100.20	-101.25	-102.45	-103.64	-104.83
-105.16	-106.25	-107.45	-108.64	-109.83
-110.13	-111.25	-112.45	-113.64	-114.83
-115.11	-116.25	-117.45	-118.64	-119.83
-120.08	-121.25	-122.45	-123.64	-124.83
-125.00	-126.25	-127.45	-128.64	-129.83
-130.00	-131.25	-132.45	-133.64	-134.83
-135.00	-136.25	-137.45	-138.64	-139.83
-140.00	-141.25	-142.45	-143.64	-144.83
-145.00	-146.25	-147.45	-148.64	-149.83
-150.00	-151.25	-152.45	-153.64	-154.83
-155.00	-156.25	-157.45	-158.64	-159.83
-160.00	-161.25	-162.45	-163.64	-164.83
-165.00	-166.25	-167.45	-168.64	-169.83
-170.00	-171.25	-172.45	-173.64	-174.83
-175.00	-176.25	-177.45	-178.64	-179.83
-180.00	-181.25	-182.45	-183.64	-184.83
-185.00	-186.25	-187.45	-188.64	-189.83
-190.00	-191.25	-192.45	-193.64	-194.83
-195.00	-196.25	-197.45	-198.64	-199.83
-200.00	-201.25	-202.45	-203.64	-204.83
-205.00	-206.25	-207.45	-208.64	-209.83
-210.00	-211.25	-212.45	-213.64	-214.83
-215.00	-216.25	-217.45	-218.64	-219.83
-220.00	-221.25	-222.45	-223.64	-224.83
-225.00	-226.25	-227.45	-228.64	-229.83
-230.00	-231.25	-232.45	-233.64	-234.83
-235.00	-236.25	-237.45	-238.64	-239.83
-240.00	-241.25	-242.45	-243.64	-244.83
-245.00	-246.25	-247.45	-248.64	-249.83
-250.00	-251.25	-252.45	-253.64	-254.83
-255.00	-256.25	-257.45	-258.64	-259.83
-260.00	-261.25	-262.45	-263.64	-264.83
-265.00	-266.25	-267.45	-268.64	-269.83
-270.00	-271.25	-272.45	-273.64	-274.83
-275.00	-276.25	-277.45	-278.64	-279.83
-280.00	-281.25	-282.45	-283.64	-284.83
-285.00	-286.25	-287.45	-288.64	-289.83
-290.00	-291.25	-292.45	-293.64	-294.83
-295.00	-296.25	-297.45	-298.64	-299.83
-300.00	-301.25	-302.45	-303.64	-304.83
-305.00	-306.25	-307.45	-308.64	-309.83
-310.00	-311.25	-312.45	-313.64	-314.83
-315.00	-316.25	-317.45	-318.64	-319.83
-320.00	-321.25	-322.45	-323.64	-324.83
-325.00	-326.25	-327.45	-328.64	-329.83
-330.00	-331.25	-332.45	-333.64	-334.83
-335.00	-336.25	-337.45	-338.64	-339.83
-340.00	-341.25	-342.45	-343.64	-344.83
-345.00	-346.25	-347.45	-348.64	-349.83
-350.00	-351.25	-352.45	-353.64	-354.83
-355.00	-356.25	-357.45	-358.64	-359.83
-360.00	-361.25	-362.45	-363.64	-364.83
-365.00	-366.25	-367.45	-368.64	-369.83
-370.00	-371.25	-372.45	-373.64	-374.83
-375.00	-376.25	-377.45	-378.64	-379.83
-380.00	-381.25	-382.45	-383.64	-384.83
-385.00	-386.25	-387.45	-388.64	-389.83
-390.00	-391.25	-392.45	-393.64	-394.83
-395.00	-396.25	-397.45	-398.64	-399.83
-400.00	-401.25	-402.45	-403.64	-404.83
-405.00	-406.25	-407.45	-408.64	-409.83
-410.00	-411.25	-412.45	-413.64	-414.83
-415.00	-416.25	-417.45	-418.64	-419.83
-420.00	-421.25	-422.45	-423.64	-424.83
-425.00	-426.25	-427.45	-428.64	-429.83
-430.00	-431.25	-432.45	-433.64	-434.83
-435.00	-436.25	-437.45	-438.64	-439.83
-440.00	-441.25	-442.45	-443.64	-444.83
-445.00	-446.25	-447.45	-448.64	-449.83
-450.00	-451.25	-452.45	-453.64	-454.83
-455.00	-456.25	-457.45	-458.64	-459.83
-460.00	-461.25	-462.45	-463.64	-464.83
-465.00	-466.25	-467.45	-468.64	-469.83
-470.00	-471.25	-472.45	-473.64	-474.83
-475.00	-476.25	-477.45	-478.64	-479.83
-480.00	-481.25	-482.45	-483.64	-484.83
-485.00	-486.25	-487.45	-488.64	-489.83
-490.00	-491.25	-492.45	-493.64	-494.83
-495.00	-496.25	-497.45	-498.64	-499.83
-500.00	-501.25	-502.45	-503.64	-504.83
-505.00	-506.25	-507.45	-508.64	-509.83
-510.00	-511.25	-512.45	-513.64	-514.83
-515.00	-516.25	-517.45	-518.64	-519.83
-520.00	-521.25	-522.45	-523.64	-524.83
-525.00	-526.25	-527.45	-528.64	-529.83
-530.00	-531.25	-532.45	-533.64	-534.83
-535.00	-536.25	-537.45	-538.64	-539.83
-540.00	-541.25	-542.45	-543.64	-544.83
-545.00	-546.25	-547.45	-548.64	-549.83
-550.00	-551.25	-552.45	-553.64	-554.83
-555.00	-556.25	-557.45	-558.64	-559.83
-560.00	-561.25	-562.45	-563.64	-564.83
-565.00	-566.25	-567.45	-568.64	-569.83
-570.00	-571.25	-572.45	-573.64	-574.83
-575.00	-576.25	-577.45	-578.64	-579.83
-580.00	-581.25	-582.45	-583.64	-584.83
-585.00	-586.25	-587.45	-588.64	-589.83
-590.00	-591.25	-592.45	-593.64	-594.83
-595.00	-596.25	-597.45	-598.64	-599.83
-600.00	-601.25	-602.45	-603.64	-604.83
-605.00	-606.25	-607.45	-608.64	-609.83
-610.00	-611.25	-612.45	-613.64	-614.83
-615.00	-616.25	-617.45	-618.64	-619.83
-620.00	-621.25	-622.45	-623.64	-624.83
-625.00	-626.25	-627.45	-628.64	-629.83
-630.00	-631.25	-632.45	-633.64	-634.83
-635.00	-636.25	-637.45	-638.64	-639.83
-640.00	-641.25	-642.45	-643.64	-644.83
-645.00	-646.25	-647.45	-648.64	-649.83
-650.00	-651.25	-652.45	-653.64	-654.83
-655.00	-656.25	-657.45	-658.64	-659.83
-660.00	-661.25	-662.45	-663.64	-664.83
-665.00	-666.25	-667.45	-668.64	-669.83
-670.00	-671.25	-672.45	-673.64	-674.83
-675.00	-676.25	-677.45	-678.64	-679.83
-680.00	-681.25	-682.45	-683.64	-684.83
-685.00	-686.25	-687.45	-688.64	-689.83
-690.00	-691.25	-692.45	-693.64	-694.83
-695.00	-696.25	-697.45	-698.64	-699.83
-700.00	-701.25	-702.45	-703.64	-704.83
-705.00	-706.25	-707.45	-708.64	-709.83
-710.00	-711.25	-712.45	-713.64	-714.83
-715.00	-716.25	-717.45	-718.64	-719.83
-720.00	-721.25	-722.45	-723.64	-724.83
-725.00	-726.25	-727.45	-728.64	-729.83
-730.00	-731.25	-732.45	-733.64	-734.83
-735.00	-736.25	-737.45	-738.64	-739.83
-740.00	-741.25	-742.45	-743.64	-744.83
-745.00	-746.25	-747.45	-748.64	-749.83
-750.00	-751.25	-752.45	-753.64	-754.83
-755.00	-756.25	-757.45	-758.64	-759.83
-760.00	-761.25	-762.45	-763.64	-764.83
-765.00	-766.25	-767.45	-768.64	-769.83
-770.00	-771.25	-772.45	-773.64	-774.83
-775.00	-776.25	-777.45	-778.64	-779.83
-780.00	-781.25	-782.45	-783.64	-784.83
-785.00	-786.25	-787.45	-788.64	-789.83
-790.00	-791.25	-792.45	-793.64	-794.83
-795.00	-796.25	-797.45	-798.64	-799.83
-800.00	-801.25	-802.45	-803.64	

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ACTUAL ANGLE OF ATTACK: 30.00 DEGREES.

DEFINITION OF THE PROFILE AT THIS ANGLE OF ATTACK:

ABSCISSAS OF THE POINTS LIMITING THE SEGMENTS:

-86.81	-82.26	-77.21	-73.37	-69.93
-66.50	-60.67	-55.63	-51.23	-46.81
-42.40	-38.00	-33.61	-29.20	-24.75
-26.32	-19.10	-13.91	-11.72	-11.55
-9.41	-8.34	-7.26	-6.24	-5.21
-4.19	-3.69	-3.20	-2.71	-2.23
-1.77	-1.54	-1.31	-1.09	-0.86
-0.67	-0.57	-0.43	-0.39	-0.30
-0.21	-0.17	-0.12	-0.09	-0.06
-0.03	-0.01	0.00	0.01	0.16
-0.12	-0.07	0.04	0.19	0.33
-0.06	-0.10	-0.13	-0.12	-0.16
-0.76	-1.94	-2.13	-2.32	-2.51
-2.87	-3.23	-3.58	-3.93	-4.27
-6.94	-5.60	-6.25	-6.89	-7.53
-8.70	-10.01	-11.23	-12.43	-13.62
-13.97	-19.20	-20.55	-22.00	-23.02
-29.40	-33.71	-37.99	-42.23	-46.47
-59.63	-50.60	-50.91	-52.93	-67.04
-71.66	-75.05	-79.00	-82.93	-86.81

ORDINATES OF THE POINTS LIMITING THE SEGMENTS:

-49.40	-47.21	-44.04	-42.92	-40.19
-37.04	-35.31	-33.19	-30.06	-28.54
-26.21	-23.67	-21.52	-19.13	-17.22
-16.29	-13.05	-11.41	-13.53	-15.28
-7.92	-4.14	-6.63	-5.94	-5.48
-4.32	-2.14	-3.76	-3.37	-2.97
-2.36	-2.34	-2.12	-1.90	-1.66
-1.42	-1.29	-1.14	-1.02	-0.84
-0.73	-0.64	-0.55	-0.46	-0.35
-0.25	-0.13	0.00	0.16	0.31
0.22	0.00	0.09	0.53	1.00
1.03	1.66	1.08	1.10	1.12
1.16	1.15	1.15	1.15	1.15
1.14	1.11	1.30	1.03	0.99
0.97	0.75	0.61	0.46	0.39
-0.05	-0.42	-0.02	-1.24	-1.67
-2.98	-3.55	-4.56	-5.62	-6.71
-9.00	-11.43	-13.99	-16.66	-19.39
-22.18	-25.02	-27.92	-30.66	-33.04
-36.07	-39.94	-43.05	-46.20	-49.40

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DATA:																																									
C	NS	UNK	DEFIS	ETAS	ALUC	DIAMC	DEC	CEMIC	BUCI	KCHO	BYCHO	G	COT4																												
100.0	99.	10.	7650.	1.20	435	40.0	1.00	517	750	500	10.	100.	010000																												
SUT	YCHO	LENS	SILFROM	SLUPTO	COUPLE	STEC	PROFIE	ALF	ALFA	YCHOX																															
0.	-80.0	0.	0.	0.	0	.00250	2409	0.0	20.0	30.9																															
AUXILIAR PARAMETERS CALCULATED BY RIPOZ PROGRAM:																																									
UN	VTSCI	ETAS	BEP	GLU	KCHLP	SV	COTO	PLAND	COFUB	DALF																															
516.80	.1437	17.87	100.00	1005.41	-107.7	1.	.0001000	.627449	.770464	30.0																															
YCHO=-80.	MSSF= 1.000																																								
S	T	XM	XC	XCM	YCM	UNF	UYF	UYC	UYC	DXC	DXCM	DYC	REYMR																												
KCHLP REACHED																																									
YCHO=-70.	MSSF= 1.000																																								
S	T	XM	XC	XCM	YCM	UNF	UYF	UYC	UYC	DXC	DXCM	DYC	REYMR																												
KCHLP REACHED																																									
YCHO=-60.	MSSF= 1.000																																								
S	T	XM	XC	XCM	YCM	UNF	UYF	UYC	UYC	DXC	DXCM	DYC	REYMR																												
KCHLP REACHED																																									
YCHO=-50.	MSSF= 1.000																																								
S	T	XM	XC	XCM	YCM	UNF	UYF	UYC	UYC	DXC	DXCM	DYC	REYMR																												

A-4402.3 Imprenta del INTA

ХСНД 43АСНБ

YCM00 -40. NESF- 1.000

5 Y M M G
TIME PEOPLE WAYS ARE SURFACE

YCM01- -50.000 YCM02- -40.000

RCMC - JO. NSSF - 1.060

THE DROPLET HITS THE SURFACE.

RGMO-20. MS6F-1060

THE DROPLET HITS THE SURFACE
ON THE SURFACE

WCSHO - 10. WSSF - 1 000

Q I AM NOT SURE
THE PEOPLE HAVE THE SURFACE

YCMQ- 0.0 N55F- 1 040

MCMLP REACHED

ВЛНІ ПОР УГОДИМІ С ТРАП-У

Y6H03- -10.00 Y6H04- 0.000

VCN0-10.0 NSSF-1.000

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YCMH-20.0 MSF-1.000

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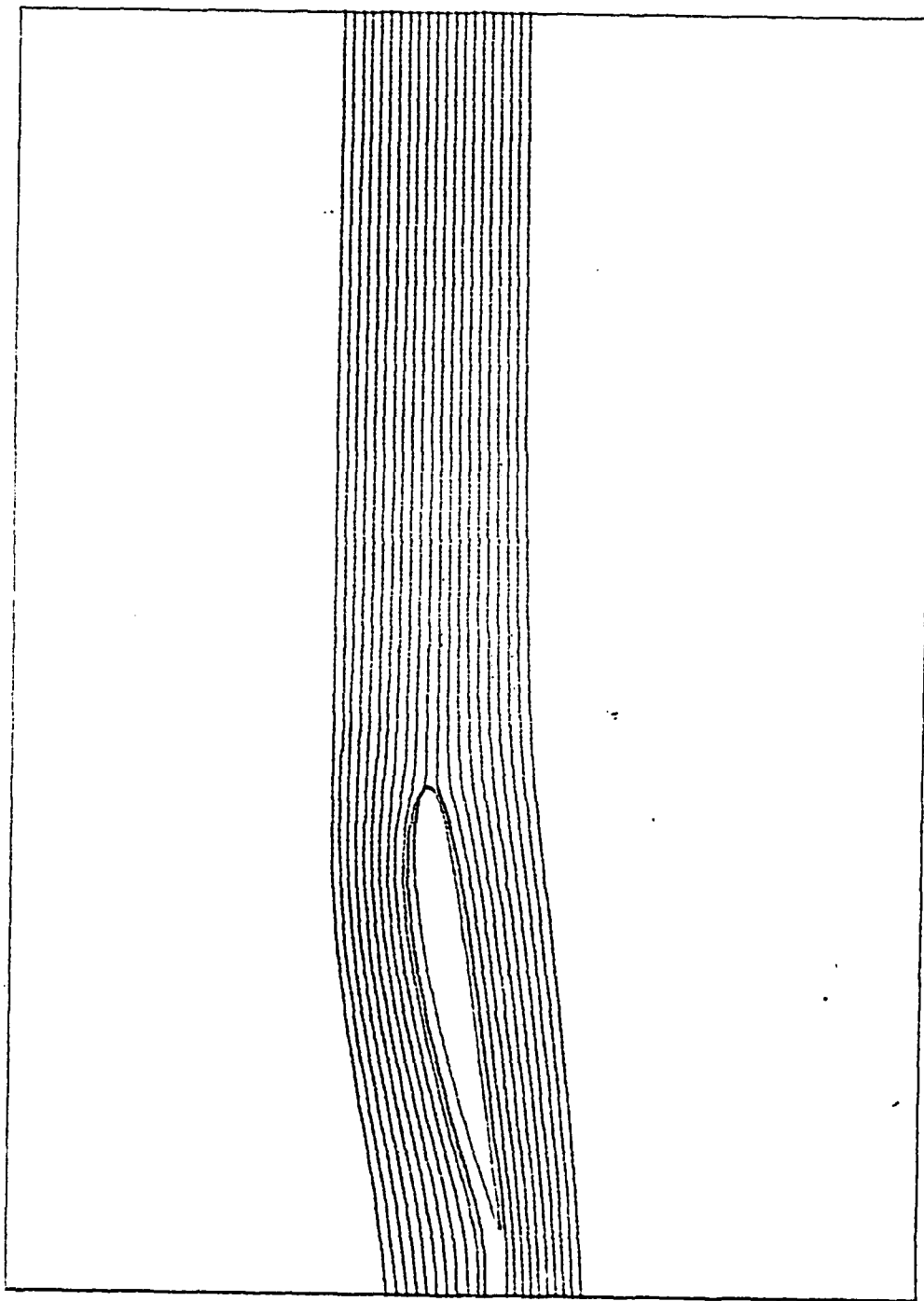
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ANGLE OF ATTACK AT WHICH THE PROFILE IS DEFINED : 0.00 DEGREES

DEFINITION OF THE PROFILE AT THIS ANGLE OF ATTACK:

ABSCISSAS OF THE POINTS LIMITING THE SEGMENTS:

0.00	5.04	10.06	15.08	20.09
25.10	30.10	35.09	40.09	45.07
50.06	55.03	60.01	65.03	70.00
75.14	77.60	80.20	82.72	85.24
87.75	89.01	90.26	91.51	92.75
93.99	94.61	95.23	95.85	96.46
97.07	97.30	97.48	97.64	97.78
97.91	98.74	98.69	99.44	99.19
99.33	99.41	99.49	99.57	99.65
99.73	99.81	99.86	99.92	100.00
100.00	99.97	99.77	99.67	99.58
99.48	99.39	99.29	99.20	99.11
98.95	98.76	98.61	98.45	98.28
97.96	97.64	97.32	97.02	96.66
96.04	95.10	94.77	94.14	93.51
92.23	90.99	89.74	88.49	87.23
85.76	82.28	79.80	77.32	74.86
69.32	51.97	53.99	54.97	49.94
45.93	39.91	34.91	29.90	24.90
19.91	14.92	9.94	4.96	0.00

ORDINATES OF THE POINTS LIMITING THE SEGMENTS:

-1.09	-1.20	-1.47	-1.66	-1.85
-1.35	-1.35	-1.45	-1.54	-1.64
-2.31	-2.20	-2.35	-2.43	-2.52
-2.74	-2.77	-2.80	-2.82	-2.88
-2.94	-2.89	-2.63	-2.55	-2.46
-2.34	-2.27	-2.19	-2.09	-1.99
-1.86	-1.75	-1.71	-1.62	-1.53
-1.52	-1.36	-1.29	-1.22	-1.14
-1.05	-1.00	-0.94	-0.86	-0.81
-0.73	-0.64	-0.53	-0.39	-0.01
0.01	0.00	0.00	0.00	0.00
0.89	0.90	1.06	1.14	1.21
1.33	1.41	1.54	1.63	1.72
1.89	2.05	2.19	2.32	2.46
2.70	2.92	3.12	3.31	3.49
3.42	3.11	4.38	4.62	4.84
5.22	5.51	5.80	6.02	6.17
6.32	6.43	6.73	6.97	7.31
7.59	7.20	4.75	4.25	3.83
3.08	2.41	1.70	1.02	0.00

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ACTUAL ANGLE OF ATTACK: 10.00 DEGREES

DEFINITION OF THE PROFILE AT THIS ANGLE OF ATTACK:

ABSCISSES OF THE POINTS LIMITING THE SEGMENTS:

-93.32	-93.49	-88.51	-83.53	-78.56
-73.60	-68.64	-63.69	-58.74	-53.79
-48.85	-43.92	-38.99	-34.03	-29.02
-24.03	-21.52	-19.03	-16.55	-14.07
-11.61	-10.39	-9.16	-7.94	-6.73
-5.53	-4.34	-3.14	-1.95	-0.76
-2.58	-2.29	-2.00	-1.72	-1.44
-1.16	-1.01	-0.83	-0.65	-0.47
-0.31	-0.16	-0.01	0.16	0.34
0.50	0.69	0.88	1.07	1.26
1.46	1.66	1.85	2.04	2.23
2.59	2.79	2.98	3.17	3.36
3.94	4.14	4.33	4.52	4.71
5.56	5.76	5.95	6.14	6.33
7.51	7.71	7.90	8.09	8.28
9.86	10.06	10.25	10.44	10.63
12.98	13.18	13.37	13.56	13.75
16.00	16.20	16.39	16.58	16.77
19.02	19.22	19.41	19.60	19.79
22.04	22.24	22.43	22.62	22.81
25.06	25.26	25.45	25.64	25.83
28.08	28.28	28.47	28.66	28.85
31.10	31.30	31.49	31.68	31.87
34.12	34.32	34.51	34.70	34.89
37.14	37.34	37.53	37.72	37.91
40.16	40.36	40.55	40.74	40.93
43.18	43.38	43.57	43.76	43.95
46.20	46.40	46.59	46.78	46.97
49.22	49.42	49.61	49.80	49.99
52.24	52.44	52.63	52.82	53.01
55.26	55.46	55.65	55.84	56.03
58.28	58.48	58.67	58.86	59.05
61.30	61.50	61.69	61.88	62.07
64.32	64.52	64.71	64.90	65.09
67.34	67.54	67.73	67.92	68.11
70.36	70.56	70.75	70.94	71.13
74.18	74.38	74.57	74.76	74.95
78.00	78.20	78.39	78.58	78.77
81.82	82.02	82.21	82.40	82.59
85.64	85.84	86.03	86.22	86.41
89.46	89.66	89.85	90.04	90.23
93.28	93.48	93.67	93.86	94.05
97.10	97.30	97.49	97.68	97.87
100.92	101.12	101.31	101.50	101.69
104.74	104.94	105.13	105.32	105.51
108.56	108.76	108.95	109.14	109.33
112.38	112.58	112.77	112.96	113.15
116.20	116.40	116.59	116.78	116.97
119.92	120.12	120.31	120.50	120.69
123.74	123.94	124.13	124.32	124.51
127.56	127.76	127.95	128.14	128.33
131.38	131.58	131.77	131.96	132.15
135.20	135.40	135.59	135.78	135.97
139.02	139.22	139.41	139.60	139.79
142.84	143.04	143.23	143.42	143.61
146.66	146.86	147.05	147.24	147.43
150.48	150.68	150.87	151.06	151.25
154.30	154.50	154.69	154.88	155.07
158.12	158.32	158.51	158.70	158.89
161.94	162.14	162.33	162.52	162.71
165.76	165.96	166.15	166.34	166.53
169.58	169.78	169.97	170.16	170.35
173.40	173.60	173.79	173.98	174.17
177.22	177.42	177.61	177.80	177.99
181.04	181.24	181.43	181.62	181.81
184.86	185.06	185.25	185.44	185.63
188.68	188.88	189.07	189.26	189.45
192.50	192.70	192.89	193.08	193.27
196.32	196.52	196.71	196.90	197.09
200.14	200.34	200.53	200.72	200.91
203.96	204.16	204.35	204.54	204.73
207.78	207.98	208.17	208.36	208.55
211.60	211.80	211.99	212.18	212.37
215.42	215.62	215.81	216.00	216.19
219.24	219.44	219.63	219.82	219.99
223.06	223.26	223.45	223.64	223.83
226.88	227.08	227.27	227.46	227.65
230.70	230.90	231.09	231.28	231.47
234.52	234.72	234.91	235.10	235.29
238.34	238.54	238.73	238.92	239.11
242.16	242.36	242.55	242.74	242.93
245.98	246.18	246.37	246.56	246.75
249.80	249.99	250.18	250.37	250.56
253.62	253.82	254.01	254.20	254.39
257.44	257.64	257.83	258.02	258.21
261.26	261.46	261.65	261.84	262.03
265.08	265.28	265.47	265.66	265.85
268.90	269.10	269.29	269.48	269.67
272.72	272.92	273.11	273.30	273.49
276.54	276.74	276.93	277.12	277.31
280.36	280.56	280.75	280.94	281.13
284.18	284.38	284.57	284.76	284.95
287.90	288.10	288.29	288.48	288.67
291.72	291.92	292.11	292.30	292.49
295.54	295.74	295.93	296.12	296.31
299.36	299.56	299.75	299.94	300.13
303.18	303.38	303.57	303.76	303.95
306.90	307.10	307.29	307.48	307.67
310.72	310.92	311.11	311.30	311.49
314.54	314.74	314.93	315.12	315.31
318.36	318.56	318.75	318.94	319.13
322.18	322.38	322.57	322.76	322.95
325.90	326.10	326.29	326.48	326.67
329.72	329.92	330.11	330.30	330.49
333.54	333.74	333.93	334.12	334.31
337.36	337.56	337.75	337.94	338.13
341.18	341.38	341.57	341.76	341.95
344.90	345.10	345.29	345.48	345.67
348.72	348.92	349.11	349.30	349.49
352.54	352.74	352.93	353.12	353.31
356.36	356.56	356.75	356.94	357.13
360.18	360.38	360.57	360.76	360.95
363.90	364.10	364.29	364.48	364.67
367.72	367.92	368.11	368.30	368.49
371.54	371.74	371.93	372.12	372.31
375.36	375.56	375.75	375.94	376.13
379.18	379.38	379.57	379.76	379.95
382.90	383.10	383.29	383.48	383.67
386.72	386.92	387.11	387.30	387.49
390.54	390.74	390.93	391.12	391.31
394.36	394.56	394.75	394.94	395.13
398.18	398.38	398.57	398.76	398.95
401.90	402.10	402.29	402.48	402.67
405.72	405.92	406.11	406.30	406.49
409.54	409.74	409.93	410.12	410.31
413.36	413.56	413.75	413.94	414.13
417.18	417.38	417.57	417.76	417.95
420.90	421.10	421.29	421.48	421.67
424.72	424.92	425.11	425.30	425.49
428.54	428.74	428.93	429.12	429.31
432.36	432.56	432.75	432.94	433.13
436.18	436.38	436.57	436.76	436.95
439.90	440.10	440.29	440.48	440.67
443.72	443.92	444.11	444.30	444.49
447.54	447.74	447.93	448.12	448.31
451.36	451.56	451.75	451.94	452.13
455.18	455.38	455.57	455.76	455.95
458.90	459.10	459.29	459.48	459.67
462.72	462.92	463.11	463.30	463.49
466.54	466.74	466.93	467.12	467.31
470.36	470.56	470.75	470.94	471.13
474.18	474.38	474.57	474.76	474.95
477.90	478.10	478.29	478.48	478.67
481.72	481.92	482.11	482.30	482.49
485.54	485.74	485.93	486.12	486.31
489.36	489.56	489.75	489.94	490.13
493.18	493.38	493.57	493.76	493.95
496.90	497.10	497.29	497.48	497.67
500.72	500.92	501.11	501.30	501.49
504.54	504.74	504.93	505.12	505.31
508.36	508.56	508.75	508.94	509.13
512.18	512.38	512.57	512.76	512.95
515.90	516.10	516.29	516.48	516.67
519.72	519.92	520.11	520.30	520.49
523.54	523.74	523.93	524.12	524.31
527.36	527.56	527.75	527.94	528.13
531.18	531.38	531.57	531.76	531.95
534.90	535.10	535.29	535.48	535.67
538.72	538.92	539.11	539.30	539.49
542.54	542.74	542.93	543.12	543.31
546.36	546.56	546.75	546.94	547.13
550.18	550.38	550.57	550.76	550.95
553.90	554.10	554.29	554.48	554.67
557.72	557.92	558.11	558.30	558.49
561.54	561.74	561.93	562.12	562.31
565.36	565.56	565.75	565.94	566.13
569.18	569.38	569.57	569.76	569.95
572.90	573.10	573.29	573.48	573.67
576.72	576.92	577.11	577.30	577.49
580.54	580.74	580.93	581.12	581.31
584.36	584.56	584.75	584.94	585.13
588.18	588.38	588.57	588.76	588.95
591.90	592.10	592.29	592.48	592.67
595.72	595.92	596.11	596.30	596.49
599.54	599.74	599.93	600.12	600.31
603.36	603.56	603.75	603.94	604.13
607.18	607.38	607.57	607.76	607.95
610.90	611.10	611.29	611.48	611.67
614.72	614.92	615.11	615.30	615.49
618.54	618.74	618.93	619.12	619.31
622.36	622.56	622.75	622.94	623.13
626.18	626.38	626.57	626.76	626.95
629.90	630.10	630.29	630.48	630.67
633.72	633.92	634.11	634.30	634.49
637.54	637.74	637.93	638.12	638.31
641.36	641.56	641.75	641.94	642.13
645.18	645.38	645.57	645.76	645.95
648.90	649.10	649.29	649.48	649.67
652.72	652.92	653.11	653.30	653.49
656.54	656.74	656.93	657.12	657.31
660.36	660.56	660.75	660.94	661.13
664.18	664.38	664.57	664.76	664.95
667.90	668.10	668.29	668.48	668.67
671.72	671.92	672.11	672.30	672.49
675.54	675.74	675.93	676.12	676.31
679.36	679.56	679.75	679.94	680.13
683.18	683.38	683.57	683.76	683.95
686.90	687.10	687.29	687.48	687.67
690.72	690.92	691.11	691.30	691.49
694.54	694.74	694.93	695.12	695.31
698.36	698.56	698.75	698.94	699.13
702.18	702.38	702.57	702.76	702.95
705.90	706.10	706.29	706.48	706.67
709.72	709.92	710.11	710.30	710.49
713.54	713.74	713.93	714.12	714.31
717.36	717.56	717.75	717.9	

DATE:	MS	UNK	DEF13	ETA13	ALUC	DIANC	BEC	DMIC	RDDE	HCNO	DYCHO	0	COFA
1990 0 99	10	7630	1 20	635	46 0	1 00	917	750	300	2 0	100	010000	
SUI	YCHO	LENS	SLEZOM	SLEUPTO	COUPLE	BIC	PROFILE	ALF	ALFA	YCHOX			
0	-20 0	0	0	0	0	00250	2409	0 0	10 0	20 0			
MILLION PARAMETERS CALCULATED BY ALPOT PROGRAM													
UN	71801	ETA9	BEP	CTU	XENLP	SU	COFO	SLANG	CSFUG	DALF			
5 4 00	1037	17 27	100 00	1005 01	1133	1	0001500	027449	770660	10 6			
YCHO=-20	ASBP=0 600												
5	1	XM	XC	XM	YCM	UXF	UYF	UYC	DYC	DXCM	DYC	REYMM	
XENLP REACHED													
YCHO=-10	MSSF=0 000												
5	1	XM	XC	XM	YCM	UXF	UYF	UYC	DYC	DXCM	DYC	REYMM	
XENLP REACHED													
YCHO=-9	MSSF=0 000												
5	1	XM	XC	XM	YCM	UXF	UYF	UYC	DYC	DXCM	DYC	REYMM	
XENLP REACHED													
YCHO=-14	MSSF=0 000												
5	1	XM	XC	XM	YCM	UXF	UYF	UYC	DYC	DXCM	DYC	REYMM	
XENLP REACHED													

INTERNATIONAL

9347438 47936

100-44944-100

—

0343038 4789K

YCNQ- -10. MSSF- 0.000

3

GROUP REACHED

[illegible]

22

COULD REACH

YCMH- -6.0 N3SF- 0.000

•

CMLP REACHED

VCN0 - 4 - 0 MSF - 0.000

•

1
ENDP REACHED

[illegible]

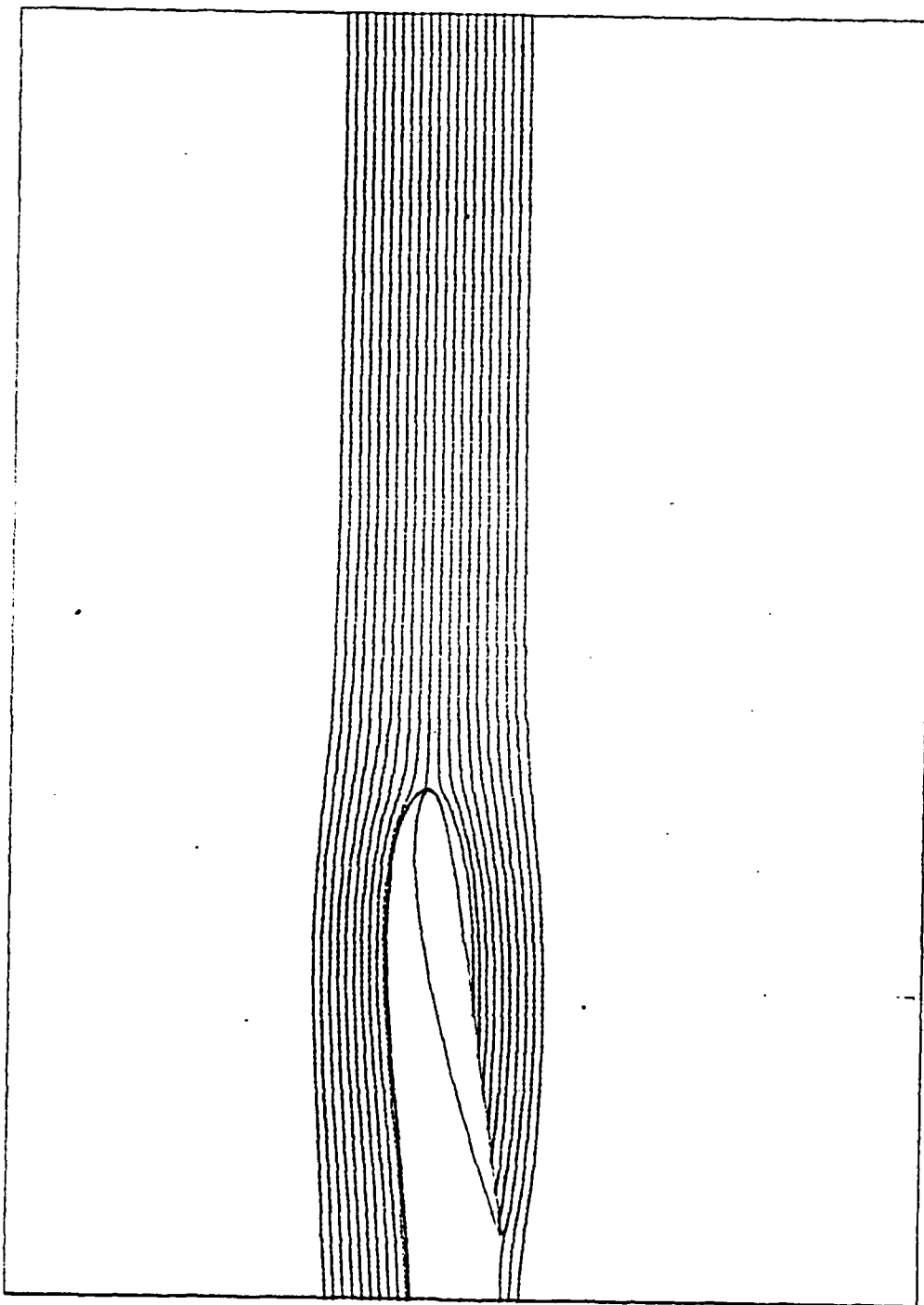
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A-1988.3 Imprenta del INTA

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ANGLE OF ATTACK AT WHICH THE PROFILE IS DEFINED : 0.00 DEGREES

DEFINITION OF THE PROFILE AT THIS ANGLE OF ATTACK:

ABSCISSES OF THE POINTS LIMITING THE SEGMENTS:

0.00	3.04	19.06	15.08	20.09
25.10	35.09	40.09	45.07	
50.06	55.03	60.01	65.02	70.00
75.14	77.08	80.20	82.72	85.24
87.75	89.01	90.26	91.51	92.73
93.92	94.61	95.23	95.85	96.46
97.07	97.39	97.60	97.99	98.29
98.39	98.74	98.89	99.04	99.19
99.31	99.41	99.49	99.57	99.65
99.73	99.81	99.88	99.93	100.00
100.00	99.87	99.77	99.57	99.38
99.42	99.39	99.29	99.20	99.11
98.91	98.78	98.61	98.45	98.29
97.96	97.64	97.32	97.03	96.68
96.04	95.40	94.77	94.14	93.51
92.25	92.99	89.74	88.49	87.25
84.76	82.28	79.60	77.32	74.06
63.32	61.97	59.93	56.92	49.94
44.93	39.91	34.91	29.90	24.90
19.91	14.92	9.94	4.96	0.00

ORDINATES OF THE POINTS LIMITING THE SEGMENTS:

-0.9	-20	-47	-64	-85
-1.95	-1.25	-1.45	-1.64	-1.84
-2.03	-2.20	-2.35	-2.49	-2.63
-2.74	-2.77	-2.80	-2.82	-2.78
-2.74	-2.64	-2.63	-2.55	-2.46
-2.34	-2.27	-2.19	-2.09	-1.99
-1.06	-1.29	-1.71	-1.62	-1.53
-1.42	-1.35	-1.29	-1.22	-1.14
-1.03	-1.00	-0.94	-0.88	-0.81
-0.72	-0.64	-0.53	-0.38	-0.21
-0.1	-0.01	0.06	0.14	0.23
0.9	0.92	1.05	1.14	1.21
1.23	1.44	1.56	1.63	1.72
1.81	2.05	2.19	2.32	2.46
2.70	2.92	3.12	3.31	3.49
3.62	4.11	4.30	4.62	4.84
5.22	5.94	5.80	6.01	6.17
6.38	6.43	6.35	6.17	5.91
5.59	5.20	4.75	4.25	3.69
3.03	2.41	1.76	1.02	0.09

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ACTUAL ANGLE OF ATTACK: 10.00 DEGREES.

DEFINITION OF THE PROFILE AT THIS ANGLE OF ATTACK:

ABSCISSES OF THE POINTS LIMITING THE SEGMENTS:

-29.52	-31.49	-38.51	-53.53	-58.56
-21.66	-68.64	-61.65	-58.74	-51.75
-48.85	-41.92	-38.95	-36.93	-29.02
-24.93	-21.32	-19.93	-16.55	-14.07
-11.61	-10.38	-9.16	-7.94	-6.73
-5.53	-4.31	-3.14	-3.75	-3.16
-2.58	-2.39	-2.00	-1.72	-1.44
-1.16	-1.01	-0.89	-0.76	-0.62
-0.59	-0.43	-0.36	-0.29	-0.22
-0.16	-0.10	-0.04	0.00	-0.02
-0.02	-0.00	-0.04	0.00	-0.02
-0.68	-0.79	-0.90	-1.00	-1.11
-1.29	-1.47	-1.65	-1.83	-2.00
-2.35	-2.70	-3.04	-3.39	-3.72
-4.39	-5.05	-5.71	-6.37	-7.02
-8.31	-9.60	-10.60	-12.15	-13.41
-15.93	-18.43	-20.92	-23.40	-25.05
-30.75	-35.43	-40.33	-45.44	-50.14
-55.22	-60.69	-64.95	-69.79	-74.62
-73.43	-80.23	-89.01	-93.77	-99.52

ORDINATES OF THE POINTS LIMITING THE SEGMENTS:

-16.87	-16.37	-15.70	-15.02	-14.34
-13.66	-12.90	-12.31	-11.64	-10.97
-10.24	-9.57	-9.00	-8.15	-7.40
-6.63	-6.23	-5.81	-5.38	-4.92
-4.43	-4.17	-3.90	-3.61	-3.30
-2.97	-2.79	-2.60	-2.40	-2.19
-1.76	-1.69	-1.71	-1.57	-1.42
-0.66	-0.17	-0.03	-0.97	-0.30
-0.77	-0.71	-0.63	-0.56	-0.48
-0.39	-0.28	-0.16	0.00	0.20
0.39	0.75	0.89	1.00	1.05
1.17	1.24	1.30	1.36	1.42
1.50	1.58	1.65	1.72	1.78
1.92	1.99	2.08	2.14	2.23
2.35	2.45	2.55	2.63	2.65
2.85	2.87	2.91	2.93	2.93
2.84	2.76	2.58	2.36	2.05
1.44	0.63	-0.31	-1.36	-2.45
-3.68	-4.93	-6.24	-7.61	-9.03
-10.50	-12.92	-13.59	-15.21	-16.82

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DATA:

C	MS	UNK	9E713	ETA15	RLVC	DIANC	DEC	DEMIC	EDDE	KCHO	OTCHO	0	COTA
100.0	99.	10.	7630.	1.20	.635	40.0	1.00	.917	.730	500.	2.0	100	.010000
SUB	YCHO	LENS	SLF88X	SLUPTO	COUPLE		OTEC	PROFILE		ALF	ALFA	YCHOX	
0.	-20.0	0.	0	0.	0.		.00250	2409		0.0	10.0	20.0	

AUXILIAR PARAMETERS CALCULATED BY AIP67 PROGRAM:

UM	VISC1	ETA5	BEP	CLU	KCHLP	SW	COTO	BLAND	COF08	DALF
314.86	.1437	17.87	100.00	1005.41	-113.5	1.	.0001000	.027449	.770664	10.0

YCHO=-20. MSSF=1.000

S T XM XC XCM YCM YCN UXF UYF UXC UYC DXC DXCM DYC DEYNN

KCHLP REACHED

YCHO=-10. MSSF=1.000

S T XM XC XCM YCM YCN UXF UYF UXC UYC DXC DXCM DYC DEYNN

KCHLP REACHED

YCHO=-15. MSSF=1.000

S T XM XC XCM YCM YCN UXF UYF UXC UYC DXC DXCM DYC DEYNN

KCHLP REACHED

YCHO=-10. MSSF=1.000

S T XM XC XCM YCM YCN UXF UYF UXC UYC DXC DXCM DYC DEYNN

KCHLP REACHED

REF ID: A66551

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S	T	AM	XC	XCM	YCM	UXF	UYF	UXC	UYC	DXC	DXCM	DYC	REYMR
THE DROPLET HITS THE SURFACE.													
YCM0= 0.0		MSSF= 1.000											
S	T	XM	XC	XCM	YCM	UXF	UYF	UXC	UYC	DXC	DXCM	DYC	REYMR
XCHLP REACHED													
VL003= -2.000		YCM0= 0.0000											
YCM0= 2.0		MSSF= 1.000											
S	T	XM	XC	XCM	YCM	UXF	UYF	UXC	UYC	DXC	DXCM	DYC	REYMR
XCHLP REACHED													
YCM0= 4.0		MSSF= 1.000											
S	T	XM	XC	XCM	YCM	UXF	UYF	UXC	UYC	DXC	DXCM	DYC	REYMR
XCHLP REACHED													
YCM0= 6.0		MSSF= 1.000											
S	T	XM	XC	XCM	YCM	UXF	UYF	UXC	UYC	DXC	DXCM	DYC	REYMR
XCHLP REACHED													
YCM0= 8.0		MSSF= 1.000											
S	T	XM	XC	XCM	YCM	UXF	UYF	UXC	UYC	DXC	DXCM	DYC	REYMR

XCNLP REACHED

YCH0-10.0 MSSF-1.000

13

XCULP REACHED

YGM0= 12.0 NSSF= 1.000

15

EXCERPT REACHED

YGM0-16.0 NS8F-1060

10

MSGMLP REACHED

YCHD- 16.6 HSSF- 1.403

13

EXCISE TEACHER

YCLH-10.0 MSSF-1.000

11

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YCN6- 20.0 MSF- 1.000

S T HP XC XCN XCH XCHP BEACHED

REYR

DYC

DXCN

DXC

UTC

UXC

UYF

UNF

YCN

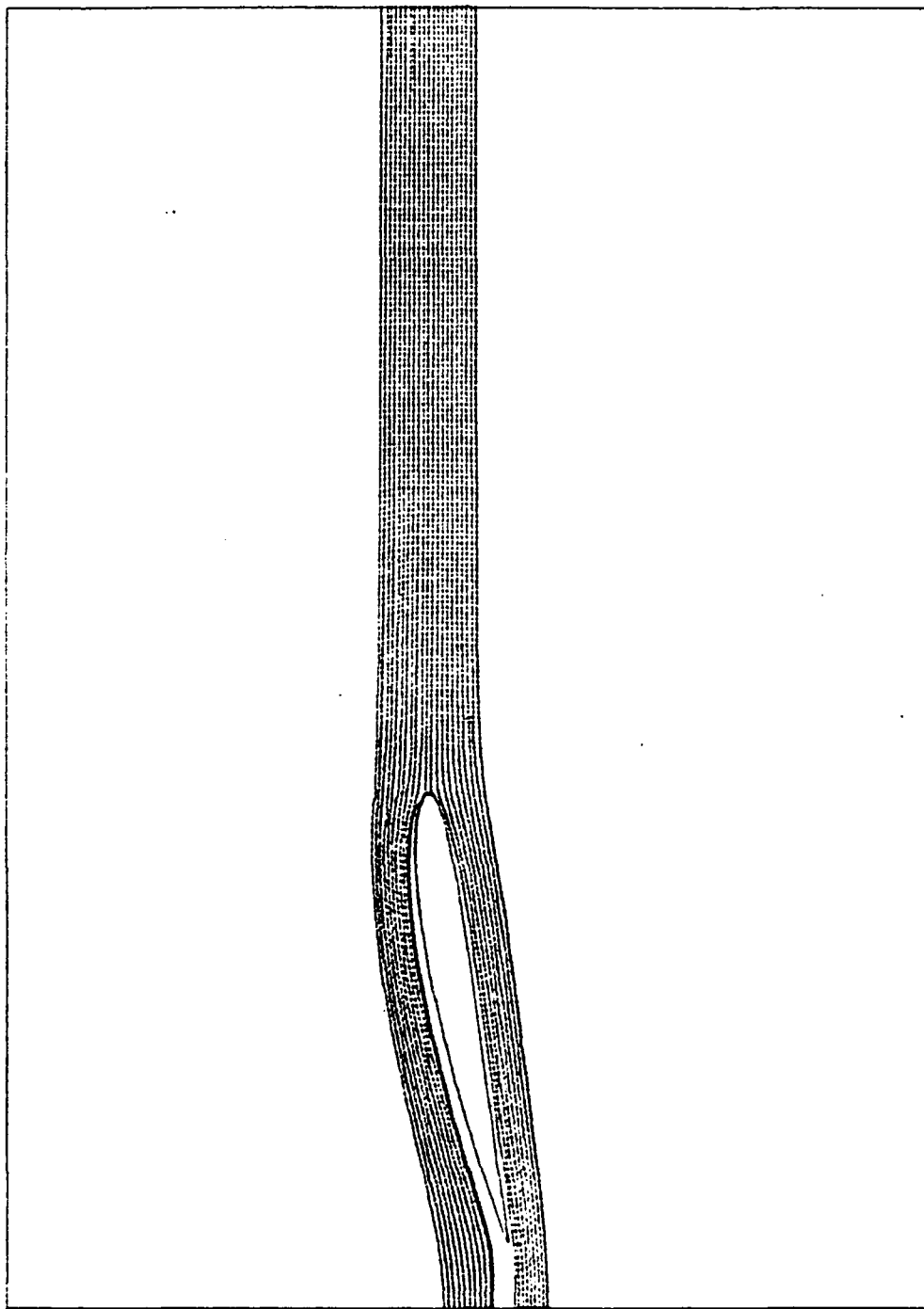
XCH

XC

HP

T

S



10.63	-15.39	-13.70	-13.92	-16.39
12.90	-12.31	-11.41	-10.17	-10.17
13.65	-9.59	-9.00	-8.15	-6.40
15.29	-6.23	-5.01	-3.30	-4.32
16.63	-4.43	-3.90	-3.61	-3.30
17.97	-2.79	-2.60	-2.40	-2.19
19.36	-1.66	-1.71	-1.57	-1.42
21.26	-1.17	-1.04	-0.99	-0.81
23.77	-0.71	-0.61	-0.56	-0.41
26.30	-0.28	-0.16	0.00	0.19
28.95	0.25	0.09	1.00	1.63
31.72	1.26	1.30	1.36	1.42
34.50	1.86	1.63	1.72	1.70
37.35	2.55	2.00	2.16	2.23
40.20	3.46	2.55	2.63	2.69
43.06	4.57	3.91	3.93	3.93
45.92	5.86	5.50	5.36	5.09
48.78	7.33	7.31	7.16	7.09
51.64	8.93	8.31	8.36	8.29
54.50	10.68	9.24	9.61	9.51
57.36	12.62	10.59	11.21	11.09
60.22	14.75	12.99	13.81	13.69
63.08	17.07	15.59	16.21	16.09
65.94	19.58	18.39	18.81	18.69
68.80	22.28	21.39	21.61	21.59
71.66	25.18	24.59	24.61	24.59
74.52	28.28	28.09	28.01	28.09
77.38	31.58	31.69	31.61	31.59
80.24	35.08	35.39	35.21	35.19
83.10	38.78	39.39	39.21	39.19
85.96	42.68	43.39	43.21	43.19
88.82	46.78	47.59	47.41	47.39
91.68	51.08	52.09	51.91	51.89
94.54	55.58	56.79	56.61	56.59
97.40	60.28	61.69	61.51	61.49
100.26	65.18	66.79	66.61	66.59
103.12	70.28	72.09	71.91	71.89
105.98	75.58	77.59	77.41	77.39
108.84	81.08	83.29	83.11	83.09
111.70	86.78	89.19	89.01	88.99
114.56	92.68	95.39	95.21	95.19
117.42	98.78	101.89	101.71	101.69
120.28	105.08	108.69	108.51	108.49
123.14	111.58	115.79	115.61	115.59
126.00	118.28	123.19	123.01	122.99
128.86	125.18	130.89	130.71	130.69
131.72	132.28	138.89	138.71	138.69
134.58	139.58	147.19	147.01	146.99
137.44	147.08	155.79	155.61	155.59
140.30	154.78	164.69	164.51	164.49
143.16	162.68	173.89	173.71	173.69
146.02	170.78	183.39	183.21	183.19
148.88	179.08	193.19	193.01	192.99
151.74	187.58	203.29	203.11	203.09
154.60	196.28	213.69	213.51	213.49
157.46	205.18	224.39	224.21	224.19
160.32	214.28	235.39	235.21	235.19
163.18	223.58	246.69	246.51	246.49
166.04	233.08	258.29	258.11	258.09
168.90	242.78	270.19	270.01	269.99
171.76	252.68	282.39	282.21	282.19
174.62	262.78	294.79	294.61	294.59
177.48	273.08	307.49	307.31	307.29
180.34	283.58	320.49	320.31	320.29
183.20	294.28	333.79	333.61	333.59
186.06	305.18	347.39	347.21	347.19
188.92	316.28	361.29	361.11	361.09
191.78	327.58	375.49	375.31	375.29
194.64	339.08	390.09	389.91	389.89
197.50	350.78	404.99	404.81	404.79
200.36	362.68	420.29	420.11	420.09
203.22	374.78	435		

INTA														N.º														Pág. 87													
DATA:																																									
2 MS UNK DEPT3 ETATS BLUC DIANC DEC DEHIC REDE KCNO DYCH0 0 COTA																																									
100.0 99 10 2630 1.20 .635 40.0 1.00 .917 .750 500 1.0 100 .010000																																									
3 JF YCH0 LENS SLFRDM SLUPT0 COUPLE DTCC PROFILE ALF ALFA YCL0X																																									
0 -10.0 0 0 0 0 .00350 2409 0.0 10.0 10.0																																									
AUXILIAR PARAMETERS CALCULATED BY A1007 PROGRAM:																																									
UN VISC1 ETAS DEP GLD XCHLP SV COTO SLAND COF08 DMLF																																									
514.00 .1437 17.07 100.00 1005.41 -113.5 1. .0001000 .027449 .776654 10.0																																									
VCH0=-10. MSSE= 0.000																																									
5 T XN XC XCN YCN UXF UYF UYC DYC DNC DNCN DYC REYNN																																									
XCHLP REACHED																																									
VCH0=-9.0 MSSE= 0.000																																									
6 T XN XC XCN YCN UXF UYF UYC DYC DNC DNCN DYC REYNN																																									
XCHLP REACHED																																									
VCH0=-8.0 MSSE= 0.000																																									
5 T XN XC XCN YCN UXF UYF UYC DYC DNC DNCN DYC REYNN																																									
XCHLP REACHED																																									
VCH0=-7.0 MSSE= 0.000																																									
5 T XN XC XCN YCN UXF UYF UYC DYC DNC DNCN DYC REYNN																																									

WORLD REVENUE

XCMLO REACHED

A-4002.3 Imprenta del INTA

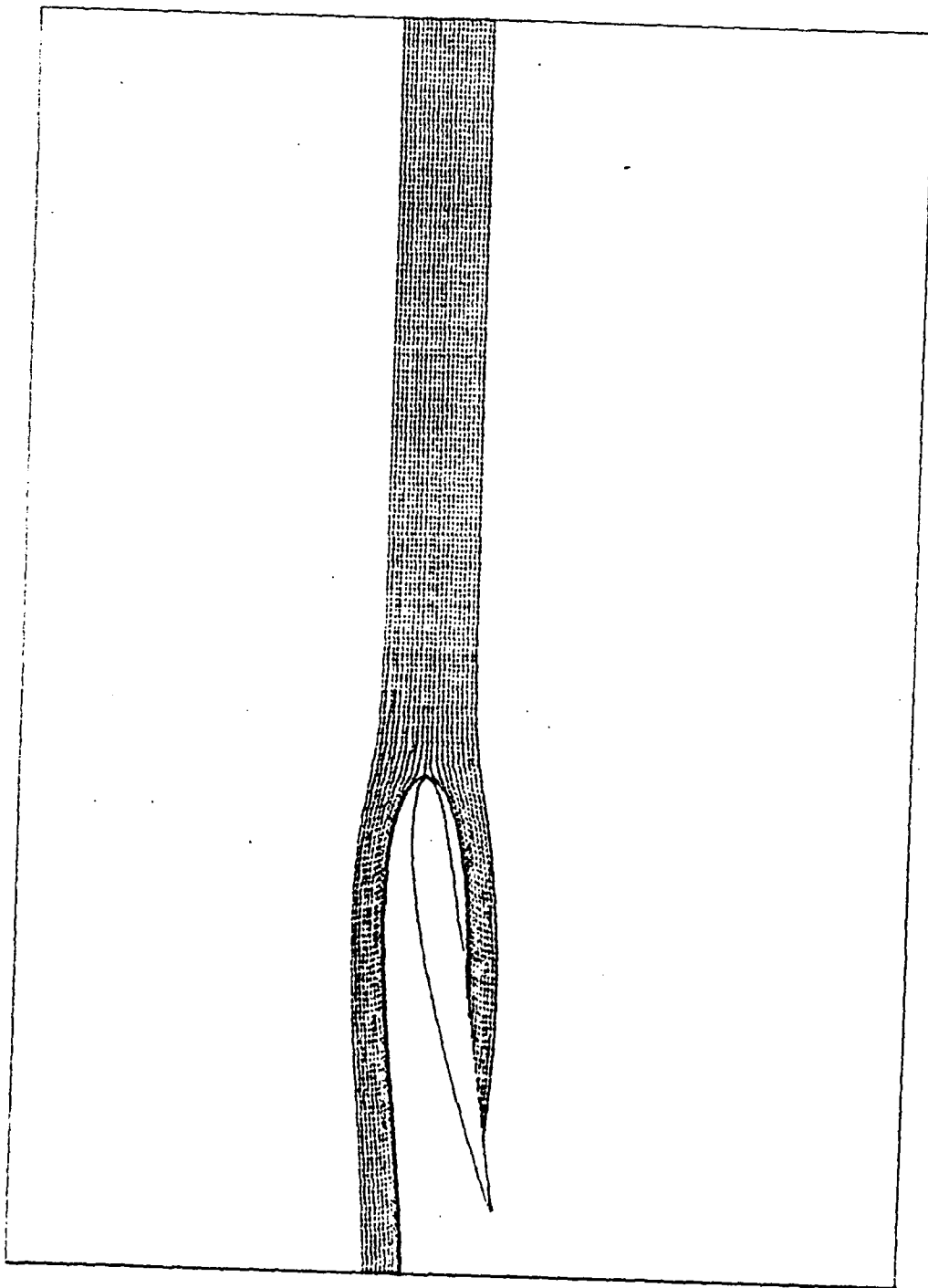
X2MLP REACHED

314 31 01 24 1

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ANGLE OF ATTACK AT WHICH THE PROFILE IS DEFINED : 0.00 DEGREES.

DEFINITION OF THE PROFILE AT THIS ANGLE OF ATTACK:

ABSCISSAS OF THE POINTS LIMITING THE SEGMENTS:

0.00	5.04	10.46	15.00	20.00
25.11	30.10	35.05	40.00	45.07
50.06	55.03	60.01	65.03	70.06
75.14	80.08	85.20	90.72	95.34
100.00	105.01	110.01	115.01	120.01
125.01	130.01	135.01	140.01	145.01
150.01	155.01	160.01	165.01	170.01
175.01	180.01	185.01	190.01	195.01
200.01	205.01	210.01	215.01	220.01
225.01	230.01	235.01	240.01	245.01
250.01	255.01	260.01	265.01	270.01
275.01	280.01	285.01	290.01	295.01
300.01	305.01	310.01	315.01	320.01
325.01	330.01	335.01	340.01	345.01
350.01	355.01	360.01	365.01	370.01
375.01	380.01	385.01	390.01	395.01
400.01	405.01	410.01	415.01	420.01
425.01	430.01	435.01	440.01	445.01
450.01	455.01	460.01	465.01	470.01
475.01	480.01	485.01	490.01	495.01
500.01	505.01	510.01	515.01	520.01
525.01	530.01	535.01	540.01	545.01
550.01	555.01	560.01	565.01	570.01
575.01	580.01	585.01	590.01	595.01
600.01	605.01	610.01	615.01	620.01
625.01	630.01	635.01	640.01	645.01
650.01	655.01	660.01	665.01	670.01
675.01	680.01	685.01	690.01	695.01
700.01	705.01	710.01	715.01	720.01
725.01	730.01	735.01	740.01	745.01
750.01	755.01	760.01	765.01	770.01
775.01	780.01	785.01	790.01	795.01
800.01	805.01	810.01	815.01	820.01
825.01	830.01	835.01	840.01	845.01
850.01	855.01	860.01	865.01	870.01
875.01	880.01	885.01	890.01	895.01
900.01	905.01	910.01	915.01	920.01
925.01	930.01	935.01	940.01	945.01
950.01	955.01	960.01	965.01	970.01
975.01	980.01	985.01	990.01	995.01
1000.01	1005.01	1010.01	1015.01	1020.01

ORDINATES OF THE POINTS LIMITING THE SEGMENTS:

-0.00	-0.00	-0.00	-0.00	-0.00
-0.01	-0.01	-0.01	-0.01	-0.01
-0.02	-0.02	-0.02	-0.02	-0.02
-0.03	-0.03	-0.03	-0.03	-0.03
-0.04	-0.04	-0.04	-0.04	-0.04
-0.05	-0.05	-0.05	-0.05	-0.05
-0.06	-0.06	-0.06	-0.06	-0.06
-0.07	-0.07	-0.07	-0.07	-0.07
-0.08	-0.08	-0.08	-0.08	-0.08
-0.09	-0.09	-0.09	-0.09	-0.09
-0.10	-0.10	-0.10	-0.10	-0.10
-0.11	-0.11	-0.11	-0.11	-0.11
-0.12	-0.12	-0.12	-0.12	-0.12
-0.13	-0.13	-0.13	-0.13	-0.13
-0.14	-0.14	-0.14	-0.14	-0.14
-0.15	-0.15	-0.15	-0.15	-0.15
-0.16	-0.16	-0.16	-0.16	-0.16
-0.17	-0.17	-0.17	-0.17	-0.17
-0.18	-0.18	-0.18	-0.18	-0.18
-0.19	-0.19	-0.19	-0.19	-0.19
-0.20	-0.20	-0.20	-0.20	-0.20
-0.21	-0.21	-0.21	-0.21	-0.21
-0.22	-0.22	-0.22	-0.22	-0.22
-0.23	-0.23	-0.23	-0.23	-0.23
-0.24	-0.24	-0.24	-0.24	-0.24
-0.25	-0.25	-0.25	-0.25	-0.25
-0.26	-0.26	-0.26	-0.26	-0.26
-0.27	-0.27	-0.27	-0.27	-0.27
-0.28	-0.28	-0.28	-0.28	-0.28
-0.29	-0.29	-0.29	-0.29	-0.29
-0.30	-0.30	-0.30	-0.30	-0.30
-0.31	-0.31	-0.31	-0.31	-0.31
-0.32	-0.32	-0.32	-0.32	-0.32
-0.33	-0.33	-0.33	-0.33	-0.33
-0.34	-0.34	-0.34	-0.34	-0.34
-0.35	-0.35	-0.35	-0.35	-0.35
-0.36	-0.36	-0.36	-0.36	-0.36
-0.37	-0.37	-0.37	-0.37	-0.37
-0.38	-0.38	-0.38	-0.38	-0.38
-0.39	-0.39	-0.39	-0.39	-0.39
-0.40	-0.40	-0.40	-0.40	-0.40
-0.41	-0.41	-0.41	-0.41	-0.41
-0.42	-0.42	-0.42	-0.42	-0.42
-0.43	-0.43	-0.43	-0.43	-0.43
-0.44	-0.44	-0.44	-0.44	-0.44
-0.45	-0.45	-0.45	-0.45	-0.45
-0.46	-0.46	-0.46	-0.46	-0.46
-0.47	-0.47	-0.47	-0.47	-0.47
-0.48	-0.48	-0.48	-0.48	-0.48
-0.49	-0.49	-0.49	-0.49	-0.49
-0.50	-0.50	-0.50	-0.50	-0.50
-0.51	-0.51	-0.51	-0.51	-0.51
-0.52	-0.52	-0.52	-0.52	-0.52
-0.53	-0.53	-0.53	-0.53	-0.53
-0.54	-0.54	-0.54	-0.54	-0.54
-0.55	-0.55	-0.55	-0.55	-0.55
-0.56	-0.56	-0.56	-0.56	-0.56
-0.57	-0.57	-0.57	-0.57	-0.57
-0.58	-0.58	-0.58	-0.58	-0.58
-0.59	-0.59	-0.59	-0.59	-0.59
-0.60	-0.60	-0.60	-0.60	-0.60
-0.61	-0.61	-0.61	-0.61	-0.61
-0.62	-0.62	-0.62	-0.62	-0.62
-0.63	-0.63	-0.63	-0.63	-0.63
-0.64	-0.64	-0.64	-0.64	-0.64
-0.65	-0.65	-0.65	-0.65	-0.65
-0.66	-0.66	-0.66	-0.66	-0.66
-0.67	-0.67	-0.67	-0.67	-0.67
-0.68	-0.68	-0.68	-0.68	-0.68
-0.69	-0.69	-0.69	-0.69	-0.69
-0.70	-0.70	-0.70	-0.70	-0.70
-0.71	-0.71	-0.71	-0.71	-0.71
-0.72	-0.72	-0.72	-0.72	-0.72
-0.73	-0.73	-0.73	-0.73	-0.73
-0.74	-0.74	-0.74	-0.74	-0.74
-0.75	-0.75	-0.75	-0.75	-0.75
-0.76	-0.76	-0.76	-0.76	-0.76
-0.77	-0.77	-0.77	-0.77	-0.77
-0.78	-0.78	-0.78	-0.78	-0.78
-0.79	-0.79	-0.79	-0.79	-0.79
-0.80	-0.80	-0.80	-0.80	-0.80
-0.81	-0.81	-0.81	-0.81	-0.81
-0.82	-0.82	-0.82	-0.82	-0.82
-0.83	-0.83	-0.83	-0.83	-0.83
-0.84	-0.84	-0.84	-0.84	-0.84
-0.85	-0.85	-0.85	-0.85	-0.85
-0.86	-0.86	-0.86	-0.86	-0.86
-0.87	-0.87	-0.87	-0.87	-0.87
-0.88	-0.88	-0.88	-0.88	-0.88
-0.89	-0.89	-0.89	-0.89	-0.89
-0.90	-0.90	-0.90	-0.90	-0.90
-0.91	-0.91	-0.91	-0.91	-0.91
-0.92	-0.92	-0.92	-0.92	-0.92
-0.93	-0.93	-0.93	-0.93	-0.93
-0.94	-0.94	-0.94	-0.94	-0.94
-0.95	-0.95	-0.95	-0.95	-0.95
-0.96	-0.96	-0.96	-0.96	-0.96
-0.97	-0.97	-0.97	-0.97	-0.97
-0.98	-0.98	-0.98	-0.98	-0.98
-0.99	-0.99	-0.99	-0.99	-0.99
-1.00	-1.00	-1.00	-1.00	-1.00

ACTUAL ANGLE OF ATTACK: 10.00 DEGREES.

DEFINITION OF THE PROFILE AT THIS ANGLE OF ATTACK:

ABSCISSAS OF THE POINTS LIMITING THE SEGMENTS:

-98.32	-92.49	-88.31	-83.33	-78.56
-73.69	-68.64	-63.63	-58.74	-53.79
-48.85	-43.92	-38.99	-34.03	-29.02
-24.03	-21.32	-19.07	-16.35	-14.07
-11.61	-10.38	-9.16	-7.94	-6.73
-5.33	-4.93	-4.34	-3.75	-3.16
-2.38	-2.29	-2.00	-1.72	-1.44
-1.16	-1.03	-0.89	-0.76	-0.63
-0.50	-0.43	-0.36	-0.29	-0.22
-0.16	-0.10	-0.04	0.03	0.02
-0.02	-0.21	-0.34	-0.46	-0.57
-0.48	-0.79	-1.00	-1.11	-1.11
-1.29	-1.47	-1.63	-1.81	-2.00
-2.35	-2.70	-3.04	-3.39	-3.72
-4.38	-5.05	-5.71	-6.37	-7.02
-8.31	-9.60	-10.88	-12.15	-13.41
-15.93	-18.43	-20.92	-23.40	-25.85
-30.75	-35.63	-40.53	-45.46	-50.34
-55.22	-60.69	-66.35	-71.99	-77.62
-79.43	-84.23	-89.01	-93.77	-98.52

ORDENATES OF THE POINTS LIMITING THE SEGMENTS:

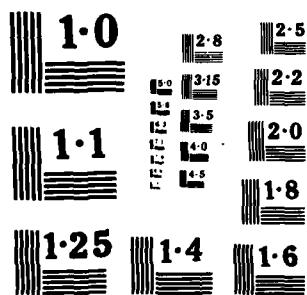
-16.89	-16.39	-15.70	-15.02	-14.34
-13.46	-12.38	-11.31	-10.64	-10.97
-10.29	-9.59	-8.88	-8.15	-7.40
-6.61	-6.23	-5.81	-5.38	-4.92
-4.43	-4.17	-3.90	-3.61	-3.30
-2.97	-2.79	-2.60	-2.40	-2.19
-1.56	-1.84	-1.71	-1.57	-1.42
-1.26	-1.17	-1.09	-0.99	-0.88
-0.77	-0.71	-0.63	-0.56	-0.48
-0.32	-0.23	-0.16	0.00	0.30
0.39	0.75	0.99	1.00	1.09
1.17	1.24	1.30	1.35	1.42
1.50	1.58	1.65	1.72	1.78
1.88	1.99	2.09	2.16	2.23
2.35	2.46	2.55	2.63	2.69
2.80	2.87	2.91	2.93	2.93
2.80	2.76	2.58	2.36	2.09
1.46	0.63	-0.31	-1.36	-2.45
-3.68	-6.93	-6.24	-7.61	-9.63
-10.50	-12.02	-13.59	-15.21	-16.59

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UNCLASSIFIED

END
DATE
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DATA:																													
C	MS	UNE	DEFIS	ETAS	BLUC	DIARC	DEC	GENIC	EDGE	HCNG	BYCH0	0	COTA																
100.0	99.	10.	7650	1.20	675	00.0	1.00	517	750	500.	1.0	100.	010000																
SUT	YCH0	LENS	SLFRON	BLUPT0	COUPLE		DTCC	PROFILE	ALF	ALFA	YCH0N																		
0.	-10.0	0.	0.	0.	0.		.00250	2409	0.0	10.0	10.0																		
AUXILIAR PARAMETERS CALCULATED BY ALP07 PROGRAM:																													
UM	VISCI	ETAS	DEP	CLU	HCMLP	SV	COT0	BLAND	COFUS		DALF																		
314.00	.1457	17.07	100.00	1005.41	-113.5	1.	.0001000	.027449	770664		10.0																		
YCH0=-10.	MSDF=1.000																												
S	T	XM	XC	XCM	YCM	UYF	UYC	UYC	UYC	DYC	DYCH	DYC	SEYMR																
THE DROPLET HITS THE SURFACE.																													
YCH01=-11.000	YCH02=-10.000																												
YCH0=-9.0	MSDF=1.000																												
S	T	XM	XC	XCM	YCM	UYF	UYC	UYC	UYC	DYC	DYCH	DYC	SEYMR																
THE DROPLET HITS THE SURFACE.																													
YCH0=-0.0	MSDF=1.000																												
S	T	XM	XC	XCM	YCM	UYF	UYC	UYC	UYC	DYC	DYCH	DYC	SEYMR																
THE DROPLET HITS THE SURFACE.																													
YCH0=-7.0	MSDF=1.000																												
S	T	XM	XC	XCM	YCM	UYF	UYC	UYC	UYC	DYC	DYCH	DYC	SEYMR																

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THE DROPLET HITS THE SURFACE.															
YCHO=-6.0 MSSP=1.000															
5	T	XN	XG	XCN	YCN	UXF	UYF	UXC	UYC	DXC	DYCN	DYC	REYNR		
THE DROPLET HITS THE SURFACE.															
YCHO=-5.0 MSSP=1.000															
5	T	XN	XG	XCN	YCN	UXF	UYF	UXC	UYC	DXC	DYCN	DYC	REYNR		
THE DROPLET HITS THE SURFACE.															
YCHO=-4.0 MSSP=1.000															
5	T	XN	XG	XCN	YCN	UXF	UYF	UXC	UYC	DXC	DYCN	DYC	REYNR		
THE DROPLET HITS THE SURFACE.															
YCHO=-3.0 MSSP=1.000															
5	T	XN	XG	XCN	YCN	UXF	UYF	UXC	UYC	DXC	DYCN	DYC	REYNR		
THE DROPLET HITS THE SURFACE.															
YCHO=-2.0 MSSP=1.000															
5	T	XN	XG	XCN	YCN	UXF	UYF	UXC	UYC	DXC	DYCN	DYC	REYNR		
THE DROPLET HITS THE SURFACE.															
YCHO=-1.0 MSSP=1.000															
5	T	XN	XG	XCN	YCN	UXF	UYF	UXC	UYC	DXC	DYCN	DYC	REYNR		

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THE DROPLET HITS THE SURFACE.					
YCHO= 0.0	MSSF= 1.000				
S	T	XN	XC	XCM	YCN
				UXF	UYF
				UXC	UYC
				DXC	DXCN
				DYC	REYNR
KCHLP REACHED					
YCHO3= -1.0000	YCHO4= 0.0000				
YCHO= 1.0	MSSF= 1.000				
S	T	XN	XC	XCM	YCN
				UXF	UYF
				UXC	UYC
				DXC	DXCN
				DYC	REYNR
KCHLP REACHED					
YCHO= 2.0	MSSF= 1.000				
S	T	XN	XC	XCM	YCN
				UXF	UYF
				UXC	UYC
				DXC	DXCN
				DYC	REYNR
KCHLP REACHED					
YCHO= 3.0	MSSF= 1.000				
S	T	XN	XC	XCM	YCN
				UXF	UYF
				UXC	UYC
				DXC	DXCN
				DYC	REYNR
KCHLP REACHED					
YCHO= 4.0	MSSF= 1.000				
S	T	XN	XC	XCM	YCN
				UXF	UYF
				UXC	UYC
				DXC	DXCN
				DYC	REYNR
KCHLP REACHED					

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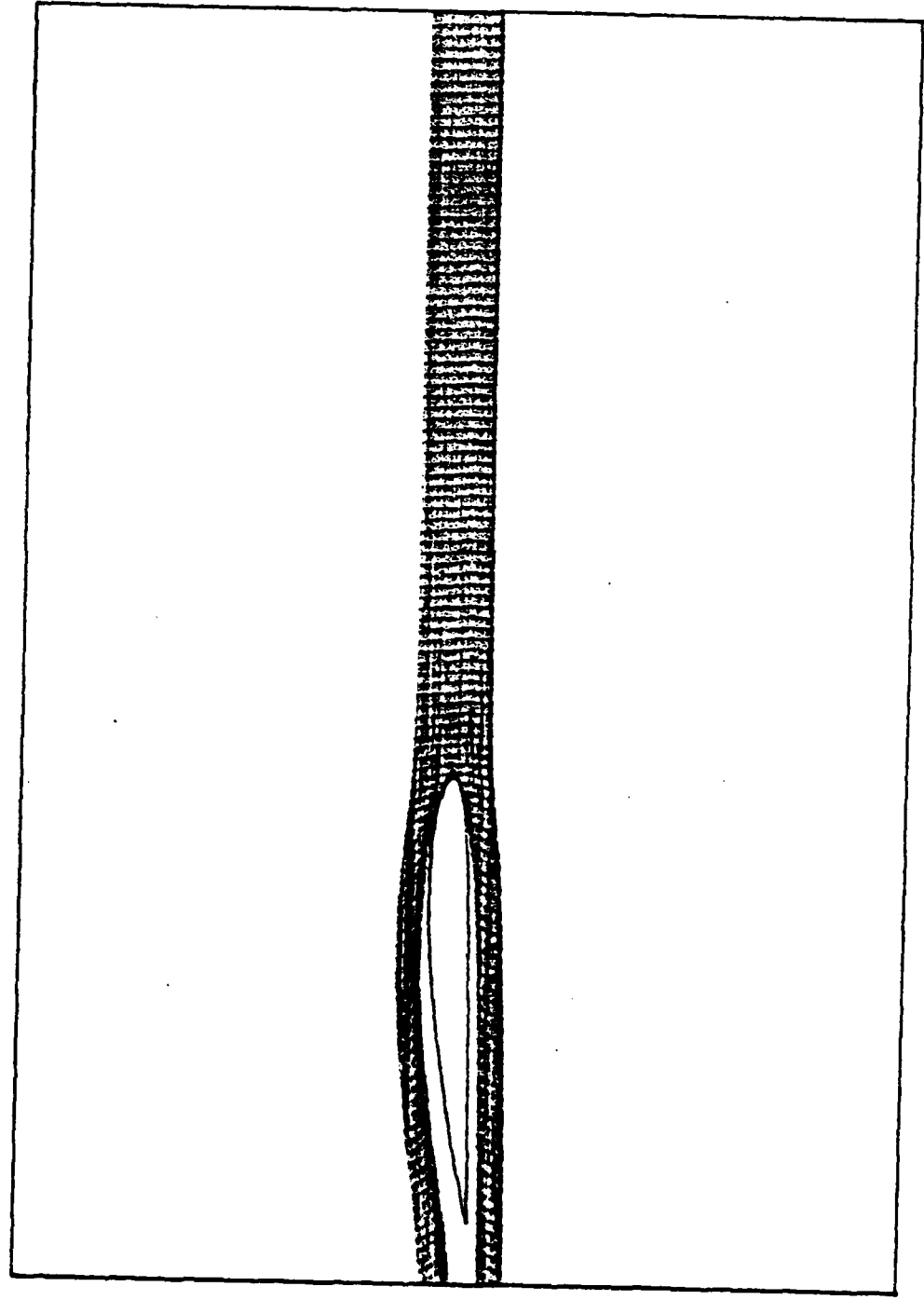
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ANGLE OF ATTACK AT WHICH THE PROFILE IS DEFINED : 0.00 DEGREES.

DEFINITION OF THE PROFILE AT THIS ANGLE OF ATTACK:

ABSCISSES OF THE POINTS LIMITING THE SEQUENCE:

0.00	5.04	10.06	15.04	20.09
25.10	30.10	35.09	40.09	45.07
50.05	55.03	60.01	65.03	70.00
75.14	77.62	80.23	82.77	85.24
87.75	89.91	92.24	94.51	97.75
99.99	99.91	95.23	95.65	95.45
97.07	97.32	97.68	97.94	98.23
98.59	98.74	98.89	99.04	99.18
99.23	99.42	99.69	99.92	99.92
99.23	99.01	98.82	98.75	100.00
100.00	99.97	99.77	99.67	99.58
99.49	99.39	99.29	99.20	99.11
98.94	98.78	98.61	98.45	98.29
97.56	97.64	97.32	97.00	96.60
96.34	95.40	94.77	94.14	93.51
92.25	92.99	89.74	83.43	87.25
84.76	82.28	79.90	77.32	74.06
69.92	64.97	59.99	54.97	49.94
44.93	39.91	34.91	29.90	24.90
19.91	14.92	9.94	4.96	0.00

ORDINATES OF THE POINTS LIMITING THE SEQUENCE:

-0.00	-1.28	-1.47	-1.46	-1.95
-1.95	-1.25	-1.45	-1.44	-1.84
-2.83	-2.29	-2.32	-2.40	-2.74
-2.74	-2.77	-2.63	-2.83	-2.74
-2.73	-2.68	-2.63	-2.55	-2.46
-2.34	-2.37	-2.19	-2.09	-1.99
-1.06	-1.79	-1.71	-1.62	-1.53
-1.42	-1.26	-1.23	-1.22	-1.14
-1.95	-1.69	-1.94	-1.82	-1.61
-1.72	-1.64	-1.53	-1.40	-1.01
0.01	0.00	0.56	0.69	0.89
0.89	0.98	1.06	1.14	1.21
1.32	1.46	1.54	1.63	1.72
1.92	2.05	2.19	2.31	2.46
2.72	2.92	3.12	3.31	3.49
3.42	3.55	3.72	3.89	4.04
5.27	5.50	5.97	6.43	6.81
4.34	4.43	4.52	4.61	4.70
5.39	5.23	5.75	6.25	6.49
3.38	2.61	1.75	0.92	0.09

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ACTUAL ANGLE OF ATTACK: 3.00 DEGREES

DEFINITION OF THE PROFILE AT THIS ANGLE OF ATTACK:

ABSCISSES OF THE POINTS LIMITING THE SEGMENTS:

-59.07	-91.02	-89.79	-86.77	-79.75
-70.74	-69.74	-64.74	-59.75	-54.75
-40.77	-40.79	-34.91	-34.79	-29.74
-24.46	-22.15	-19.63	-17.11	-14.40
-12.09	-10.04	-9.59	-6.35	-7.11
-5.03	-5.26	-4.65	-4.04	-3.43
-2.03	-2.51	-2.23	-1.91	-1.61
-1.34	-1.19	-1.05	-0.73	-0.74
-0.32	-0.54	-0.49	-0.25	-0.31
-0.23	-0.16	-0.09	-0.01	0.00
-0.09	-0.10	-0.20	-0.36	-0.46
-0.57	-0.64	-0.76	-0.86	-0.94
-1.13	-1.33	-1.47	-1.63	-1.80
-2.13	-2.47	-2.79	-3.12	-3.45
-4.10	-4.74	-5.39	-6.05	-6.67
-7.94	-9.21	-10.47	-11.73	-12.94
-15.49	-17.99	-20.49	-22.96	-25.43
-33.32	-35.32	-40.29	-45.30	-50.30
-55.49	-60.29	-65.25	-70.23	-75.19
-85.14	-90.09	-95.03	-94.96	-95.87

ORDINATES OF THE POINTS LIMITING THE SEGMENTS:

-5.13	-5.25	-5.17	-5.10	-5.03
-4.96	-4.50	-4.51	-4.77	-4.71
-4.93	-4.54	-4.44	-4.31	-4.18
-4.93	-3.93	-3.93	-3.76	-3.55
-3.36	-3.45	-3.14	-2.99	-2.83
-2.65	-2.54	-2.43	-2.30	-2.16
-2.01	-1.92	-1.82	-1.74	-1.61
-1.40	-1.42	-1.34	-1.26	-1.18
-1.08	-1.02	-0.96	-0.89	-0.82
-0.74	-0.64	-0.53	-0.37	-0.06
-0.01	-0.39	-0.55	-0.70	-0.79
0.07	0.95	1.02	1.09	1.16
1.27	1.37	1.47	1.55	1.64
1.73	1.93	2.06	2.18	2.29
2.55	2.80	2.85	3.01	3.15
3.41	3.64	3.80	4.02	4.17
4.42	4.61	4.74	4.92	5.05
4.93	5.59	6.25	6.91	7.29
2.79	2.05	1.34	-0.33	-1.24
-1.11	-2.04	-3.02	-4.05	-5.13

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DATA:																																									
C	MS	UNK	DEFIS	ETATS	BLUC	DIANC	DEC	DEMIC	RDOF	KCH9	DTCH9	0	COTA																												
100 0	93	50	7630	1.20	635	40.0	1.00	917	750	500	0	100	.010000																												
SMT	YCNO	LEMS	SLFRAM	SLUPTD	COUPLE	DTCC	PROFLE	ALF	ALFA	YCNOX																															
0	-0.0	0	0	0	0	.00100	2405	0.0	3.0	0.0																															
AUXILIAR PARAMETERS CALCULATED BY ALP07 PROGRAM:																																									
UN	VISCI	ETAS	SEP	CLU*	KCHLP	SU	COTO	BLAND	COFUP	0ALF																															
2574 00	1437	17 87	100 00	1025 91	-114.2	1.	.0001000	027149	270664	3.0																															
VC40-	-8.0	MSSE= 0.000																																							
S	T	XM	XC	XCM	YCM	UXF	UYF	UXC	UYC	DXC	DXCM	BYC	BEYCM																												
KCHLP REACHED																																									
VCNO-	-7.6	MSSE= 0.000																																							
S	T	XM	XC	XCM	YCM	UXF	UYF	UXC	UYC	DXC	DXCM	BYC	BEYCM																												
KCHLP REACHED																																									
VCNO-	-7.2	MSSE= 0.000																																							
S	T	XM	XC	XCM	YCM	UXF	UYF	UXC	UYC	DXC	DXCM	BYC	BEYCM																												
KCHLP REACHED																																									
VCNO-	-6.0	MSSE= 0.000																																							
S	T	XM	XC	XCM	YCM	UXF	UYF	UXC	UYC	DXC	DXCM	BYC	BEYCM																												

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S	T	XM	XG	XCM	YCM	UXF	UYF	UXC	UYC	DXC	DXCH	DYC	REYMR
XCMLP REACHED													
YCM0- -2.0 MSSF- 0.000													
S	T	XM	XG	XCM	YCM	UXF	UYF	UXC	UYC	DXC	DXCH	DYC	REYMR
XCMLP REACHED													
YCM0- -1.6 MSSF- 0.000													
S	T	XM	XG	XCM	YCM	UXF	UYF	UXC	UYC	DXC	DXCH	DYC	REYMR
XCMLP REACHED													
YCM0- -1.2 MSSF- 0.000													
S	T	XM	XG	XCM	YCM	UXF	UYF	UXC	UYC	DXC	DXCH	DYC	REYMR
THE DROPLET HITS THE SURFACE.													
YCM01- -1.6000 YCM02- -1.2000													
YCM0- -.0 MSSF- 0.000													
S	T	XM	XG	XCM	YCM	UXF	UYF	UXC	UYC	DXC	DXCH	DYC	REYMR
THE DROPLET HITS THE SURFACE.													
YCM0- -.4 MSSF- 0.000													
S	T	XM	XG	XCM	YCM	UXF	UYF	UXC	UYC	DXC	DXCH	DYC	REYMR
THE DROPLET HITS THE SURFACE.													

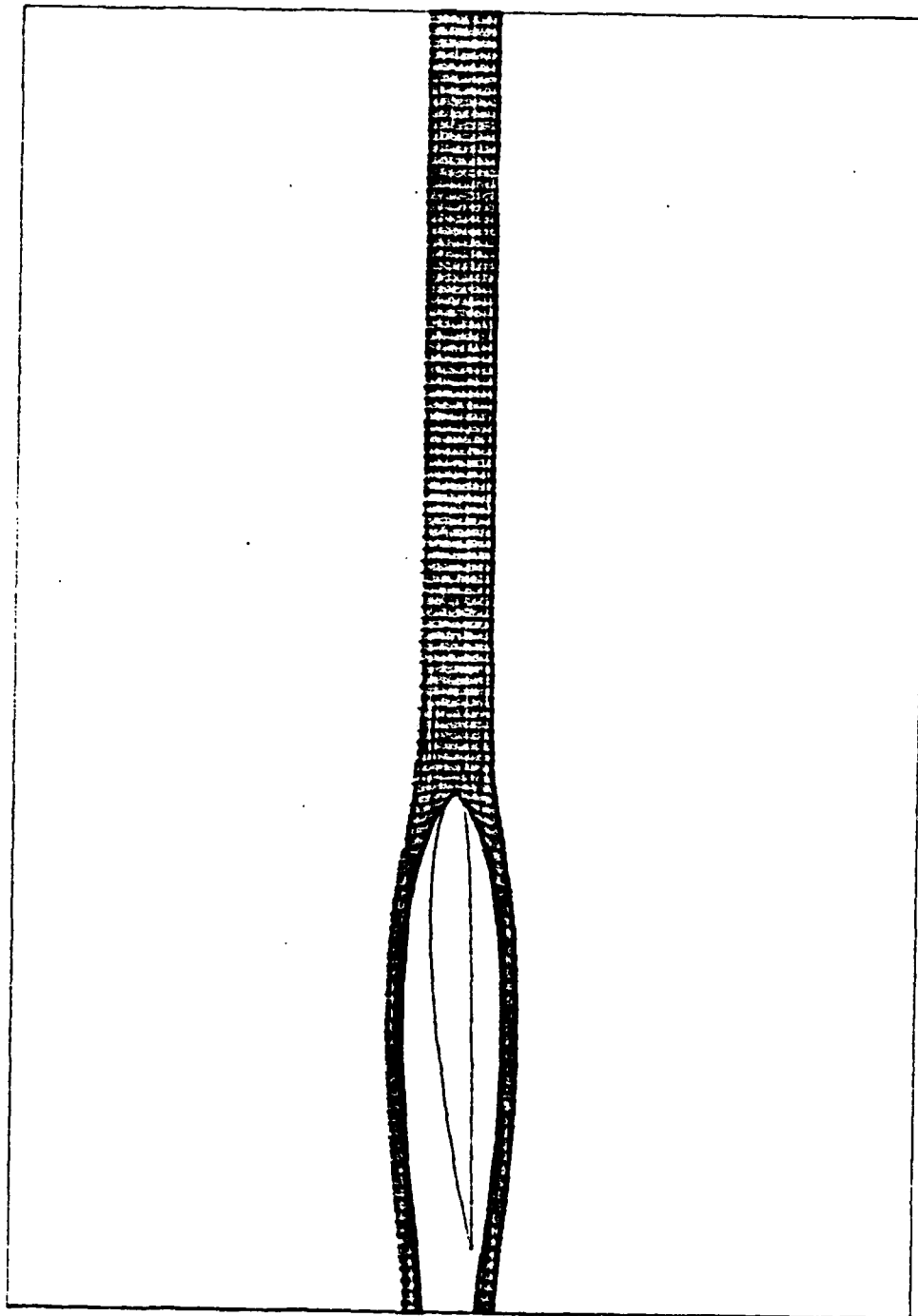
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ANGLE OF ATTACK AT WHICH THE PROFILE IS DEFINED : 0 00 DEGREES

DEFINITION OF THE PROFILE AT THIS ANGLE OF ATTACK:

ABSCISSAS OF THE POINTS LIMITING THE SEGMENTS:

0 00	3 04	19 06	19 08	20 09
25 10	20 10	25 09	43 09	45 07
50 26	55 03	60 01	65 03	70 04
75 14	77 60	86 20	82 72	85 24
87 25	83 01	90 26	91 51	92 25
93 99	94 61	95 23	95 85	96 46
97 07	97 39	97 68	97 99	98 29
98 59	98 74	98 89	99 04	99 14
99 31	99 41	99 49	99 57	99 65
99 73	99 81	99 84	99 95	100 00
100 00	99 07	97 27	95 57	93 56
91 40	87 39	82 29	75 29	68 11
60 91	56 70	50 61	43 43	36 29
27 96	27 64	27 32	27 03	26 60
36 34	35 40	34 77	34 14	33 51
32 23	30 99	29 74	28 49	27 25
24 76	22 28	19 60	17 12	14 06
03 92	64 97	39 99	34 97	49 96
44 93	39 91	34 91	29 90	24 90
19 91	14 92	9 94	4 96	0 00

ORDINATES OF THE POINTS LIMITING THE SEGMENTS:

- 03	- 20	- 47	- 64	- 69
-1 95	-1 35	-1 45	-1 64	-1 41
-2 01	-2 20	-2 25	-2 49	-2 61
-2 71	-2 77	-2 80	-2 90	-2 79
-2 33	-2 63	-2 53	-2 55	-2 46
-2 34	-2 27	-2 19	-2 09	-1 99
-1 96	-1 79	-1 71	-1 62	-1 53
-1 42	-1 35	-1 29	-1 22	-1 16
-1 05	-1 00	- 94	- 84	- 81
- 73	- 64	- 53	- 38	- 31
- 31	- 43	- 56	- 69	- 80
1 09	1 00	1 06	1 14	1 21
1 32	1 44	1 54	1 63	1 72
1 89	2 05	2 19	2 33	2 46
2 70	2 92	3 12	3 31	3 49
3 82	4 11	4 38	4 62	4 86
5 22	5 54	6 00	6 01	6 17
6 38	6 42	6 35	6 17	5 91
5 50	5 20	4 75	4 25	3 69
3 00	2 41	1 70	0 92	0 00

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ACTUAL ANGLE OF ATTACK: 3.00 DEGREES

DEFINITION OF THE PROFILE AT THIS ANGLE OF ATTACK:

ABSCISSES OF THE POINTS LIMITING THE SEGMENTS:

-99.07	-94.02	-89.79	-84.77	-79.75
-74.74	-69.74	-64.74	-59.75	-54.76
-49.77	-44.79	-39.81	-34.79	-29.74
-24.68	-22.15	-19.63	-17.11	-14.60
-12.09	-10.04	-9.33	-8.35	-7.11
-5.80	-5.26	-4.65	-4.04	-3.43
-2.83	-2.53	-2.23	-1.93	-1.63
-1.34	-1.19	-1.05	-0.96	-0.74
-0.62	-0.54	-0.46	-0.39	-0.31
-0.23	-0.16	-0.09	-0.03	0.00
0.00	0.15	0.26	0.36	0.46
0.57	0.66	0.76	0.86	0.95
1.13	1.30	1.47	1.63	1.80
2.13	2.47	2.79	3.12	3.45
4.16	4.74	5.39	6.03	6.67
7.94	9.21	10.47	11.73	13.00
15.40	17.99	20.48	23.96	25.43
32.32	35.32	40.23	45.35	50.32
55.29	62.28	65.25	70.23	75.19
85.14	95.09	99.63	94.96	99.07

ORDINATES OF THE POINTS LIMITING THE SEGMENTS:

-5.13	-5.25	-5.17	-5.10	-5.03
-4.96	-4.90	-4.83	-4.77	-4.71
-4.63	-4.54	-4.46	-4.31	-4.18
-4.03	-3.93	-3.83	-3.70	-3.55
-3.36	-3.25	-3.13	-2.99	-2.83
-2.65	-2.54	-2.43	-2.30	-2.16
-2.01	-1.92	-1.82	-1.72	-1.61
-1.43	-1.42	-1.34	-1.26	-1.18
-1.03	-1.02	-0.95	-0.87	-0.82
-0.74	-0.64	-0.55	-0.47	-0.39
-0.01	0.01	0.03	0.06	0.10
0.07	0.15	0.23	0.31	0.39
1.27	1.37	1.47	1.55	1.64
1.79	1.93	2.06	2.18	2.29
2.50	2.60	2.65	2.91	3.15
3.41	3.64	3.86	4.02	4.17
4.42	4.59	4.74	4.82	4.85
4.89	4.99	4.95	3.81	3.29
2.70	2.05	1.34	0.58	-0.24
-1.11	-2.04	-3.02	-4.05	-5.13

INTA														N.º														Pág.114													
DATA:																																									
C	MS	UMK	DEFIS	ETATS	ALVC	DIAMC	DEC	DEMIC	BDGL	KCHO	BYCHO	B	COTA																												
100.0	99.	30	2650	1.20	635	40.0	1.00	517	756	500	.4	100	.010000																												
CUT	YCHO	LENS	SLEPRN	SLUPTO	COUPLE	STCC	PROFLE	ALF	ALFA	YCHOA																															
0.	-0.0	0.	0.	0.	0.	.00100	2409	0.0	3.0	0.0																															
AUXILIAR PARAMETERS CALCULATED BY RIPOZ PROGRAM:																																									
UN	VISC1	ETAS	DEP	CLV	XCMLP	SV	COTO	BLAND	COFUS	DALP																															
2374.00	.1437	17.07	100.00	1025.41	-114.2	1.	.0031000	.027443	.770664	3.0																															
YCHO=-0.0	HSEF= 1.000																																								
S	T	XM	XC	XCN	YCN	UXF	UYF	UXC	UYC	DXC	DXCN	BYC	BEYNA																												
XCMLP REACHED																																									
YCHO=-7.6	HSEF= 1.000																																								
S	T	XM	XC	XCN	YCN	UXF	UYF	UXC	UYC	DXC	DXCN	BYC	BEYNA																												
XCMLP REACHED																																									
YCHO=-7.2	HSEF= 1.000																																								
S	T	XM	XC	XCN	YCN	UXF	UYF	UXC	UYC	DXC	DXCN	BYC	BEYNA																												
XCMLP REACHED																																									
YCHO=-6.0	HSEF= 1.000																																								
S	T	XM	XC	XCN	YCN	UXF	UYF	UXC	UYC	DXC	DXCN	BYC	BEYNA																												

WIGHTS REACHED

INTA	N.º	Pág. 116
YCHO - 4.4	MSF - 1.000	
5	1	XM XC
XCHLP REACHED		
YCHO - 4.0	MSF - 1.000	
5	1	XM XC
XCHLP REACHED		
YCHO - 3.6	MSF - 1.000	
5	1	XM XC
XCHLP REACHED		
YCHO - 3.2	MSF - 1.000	
5	1	XM XC
XCHLP REACHED		
YCHO - 2.0	MSF - 1.000	
5	1	XM XC
XCHLP REACHED		
YCHO - 2.0	MSF - 1.000	
5	1	XM XC
XCHLP REACHED		

ОБЩЕЕ СООБЩЕНИЕ

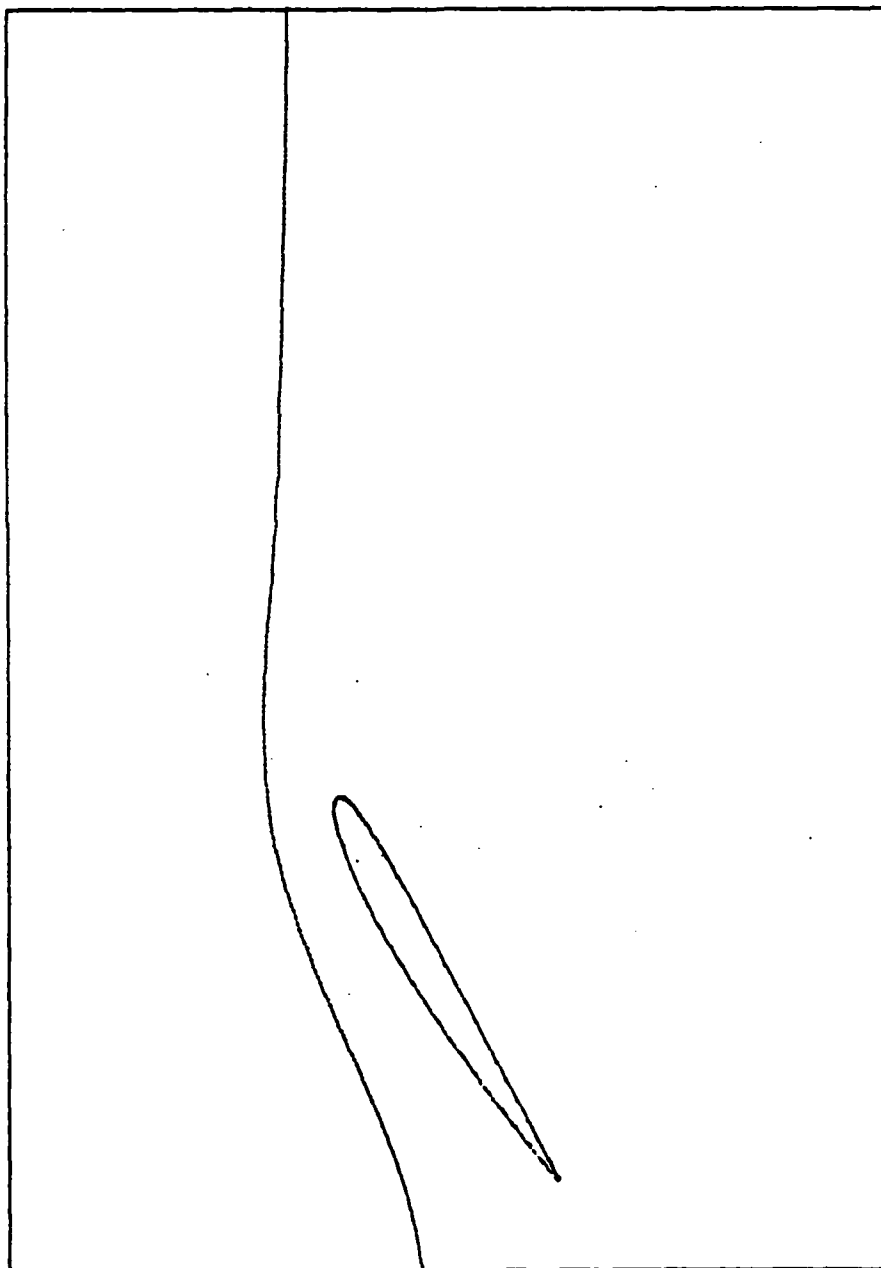
15

RECEIVED

REACHING

12 Jul 84 (G)
OK

to be provided on el de.
25 Jul (f) OK



INTA

N.º

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DATA:

C MS UNK DEFIS ETABR HLUG DIANC DEG DENIC RODE KCHO .GVCHO 0 COTA
100.0 99. 10. 7450. 1.20 .635 40.0 1.00 .917 .750 500. 10. 100. 61666

SUT VCHO LENS SLERON SLUPTO COUPLE DTCC PROFILE ALF ALFA VCHOX
1. 10.0 1. 306. 100. 0. .00250 2409 0.0 30.0 120.0

ANILILAR PARAMETERS CALCULATED BY ALPOT PROGRAM:

OM VISCI ETAS SEP GLU HEMLP SU COTG RLAND COFUS DOLF
314.00 1487 17.07 100.00 1005.41 -107.7 1. .0001000 .027449 .770664 30.0

VCHO= 10.0 H3SF= 0.000

0	0.00000	0.0	300.000	300.0	10.0000	15.37	.32	15.32	.93	0.00000	DNG	DNGN	DYC	REYMH
1	0.02500	1.3	300.030	499.0	10.0023	15.36	.34	15.32	.93	0.00000	-1.25	-1.25	0.00000	0.000
2	0.05000	2.6	300.070	497.5	10.0047	15.40	.34	15.35	.93	0.00000	-1.25	-1.25	0.00000	0.000
3	0.07500	3.9	300.115	496.3	10.0070	15.44	.35	15.37	.94	0.00000	-1.25	-1.25	0.00000	0.000
4	0.10000	5.1	300.163	495.0	10.0094	15.47	.35	15.40	.94	0.00000	-1.25	-1.25	0.00000	0.000
5	0.12500	6.4	300.192	493.0	10.0117	15.51	.35	15.43	.94	0.00000	-1.25	-1.25	0.00000	0.000
6	0.15000	7.7	300.230	492.5	10.0141	15.54	.36	15.46	.95	0.00000	-1.25	-1.25	0.00000	0.000
7	0.17500	9.0	300.265	491.3	10.0165	15.58	.36	15.50	.95	0.00000	-1.25	-1.25	0.00000	0.000
8	0.20000	10.3	300.300	490.0	10.0188	15.62	.37	15.53	.96	0.00000	-1.25	-1.25	0.00000	0.000
9	0.22500	11.6	300.347	488.0	10.0212	15.65	.37	15.56	.96	0.00000	-1.25	-1.25	0.00000	0.000
10	0.25000	12.9	300.395	487.5	10.0237	15.69	.38	15.60	.97	0.00000	-1.25	-1.25	0.00000	0.000
11	0.27500	14.2	300.445	485.0	10.0261	15.73	.38	15.64	.97	0.00000	-1.25	-1.25	0.00000	0.000
12	0.30000	15.4	300.464	485.0	10.0285	15.77	.39	15.67	.98	0.00000	-1.25	-1.25	0.00000	0.000
13	0.32500	16.7	300.503	483.0	10.0309	15.80	.39	15.71	.98	0.00000	-1.25	-1.25	0.00000	0.000
14	0.35000	18.0	300.542	481.3	10.0334	15.84	.40	15.75	.99	0.00000	-1.25	-1.25	0.00000	0.000
15	0.37500	19.3	300.582	480.0	10.0359	15.88	.40	15.79	.99	0.00000	-1.25	-1.25	0.00000	0.000
16	0.40000	20.6	300.621	480.0	10.0383	15.92	.41	15.84	.99	0.00000	-1.25	-1.25	0.00000	0.000
17	0.42500	21.9	300.661	478.0	10.0408	15.95	.41	15.86	1.00	0.00000	-1.25	-1.25	0.00000	0.000
18	0.45000	23.2	300.700	477.5	10.0433	15.99	.42	15.90	1.00	0.00000	-1.25	-1.25	0.00000	0.000
19	0.47500	24.5	300.740	476.3	10.0459	16.03	.42	15.94	1.01	0.00000	-1.25	-1.25	0.00000	0.000
20	0.50000	25.7	300.780	475.0	10.0484	16.07	.43	15.97	1.01	0.00000	-1.25	-1.25	0.00000	0.000
21	0.52500	27.0	300.820	473.0	10.0509	16.11	.43	16.01	1.02	0.00000	-1.25	-1.25	0.00000	0.000
22	0.55000	28.3	300.860	472.5	10.0535	16.15	.44	16.05	1.02	0.00000	-1.25	-1.25	0.00000	0.000
23	0.57500	29.6	300.900	471.1	10.0560	16.19	.44	16.09	1.03	0.00000	-1.25	-1.25	0.00000	0.000
24	0.60000	30.9	300.941	470.0	10.0586	16.23	.45	16.13	1.03	0.00000	-1.25	-1.25	0.00000	0.000
25	0.62500	32.2	300.981	468.0	10.0612	16.27	.45	16.17	1.04	0.00000	-1.25	-1.25	0.00000	0.000
26	0.65000	33.5	301.021	467.6	10.0638	16.31	.46	16.21	1.04	0.00000	-1.25	-1.25	0.00000	0.000
27	0.67500	34.7	301.062	466.3	10.0664	16.35	.46	16.25	1.05	0.00000	-1.25	-1.25	0.00000	0.000
28	0.70000	36.0	301.103	465.1	10.0690	16.39	.47	16.29	1.05	0.00000	-1.25	-1.25	0.00000	0.000
29	0.72500	37.3	301.143	463.0	10.0717	16.43	.47	16.33	1.06	0.00000	-1.25	-1.25	0.00000	0.000
30	0.75000	38.6	301.184	462.6	10.0743	16.47	.48	16.37	1.06	0.00000	-1.25	-1.25	0.00000	0.000
31	0.77500	39.9	301.225	461.3	10.0770	16.51	.48	16.41	1.07	0.00000	-1.25	-1.25	0.00000	0.000

[illegible]

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211	61730	275.4	511.176	235.0	10.9623	29.51	3.56	29.46	3.46	67350	275.4	511.176	235.0	10.9623	29.51	3.56	29.46	3.46	67350
212	61730	276.7	511.250	236.3	10.9710	30.04	3.60	29.59	3.49	67350	276.7	511.250	236.3	10.9710	30.04	3.60	29.59	3.49	67350
213	61730	277.0	511.324	237.6	10.9798	30.57	3.64	29.62	3.53	67350	277.0	511.324	237.6	10.9798	30.57	3.64	29.62	3.53	67350
214	61730	278.3	511.399	238.9	10.9886	31.10	3.68	29.67	3.57	67350	278.3	511.399	238.9	10.9886	31.10	3.68	29.67	3.57	67350
215	61730	279.6	511.474	240.2	10.9974	31.63	3.72	29.72	3.61	67350	279.6	511.474	240.2	10.9974	31.63	3.72	29.72	3.61	67350
216	61730	280.9	511.549	241.5	11.0062	32.16	3.76	29.77	3.65	67350	280.9	511.549	241.5	11.0062	32.16	3.76	29.77	3.65	67350
217	61730	282.2	511.624	242.8	11.0150	32.69	3.80	29.82	3.69	67350	282.2	511.624	242.8	11.0150	32.69	3.80	29.82	3.69	67350
218	61730	283.5	511.699	244.1	11.0238	33.22	3.84	29.87	3.73	67350	283.5	511.699	244.1	11.0238	33.22	3.84	29.87	3.73	67350
219	61730	284.8	511.774	245.4	11.0326	33.75	3.88	29.92	3.77	67350	284.8	511.774	245.4	11.0326	33.75	3.88	29.92	3.77	67350
220	61730	286.1	511.849	246.7	11.0414	34.28	3.92	29.97	3.81	67350	286.1	511.849	246.7	11.0414	34.28	3.92	29.97	3.81	67350
221	61730	287.4	511.924	248.0	11.0502	34.81	3.96	30.02	3.85	67350	287.4	511.924	248.0	11.0502	34.81	3.96	30.02	3.85	67350
222	61730	288.7	512.000	249.3	11.0590	35.34	4.00	30.07	3.89	67350	288.7	512.000	249.3	11.0590	35.34	4.00	30.07	3.89	67350
223	61730	289.0	512.075	250.6	11.0678	35.87	4.04	30.12	3.93	67350	289.0	512.075	250.6	11.0678	35.87	4.04	30.12	3.93	67350
224	61730	290.3	512.150	251.9	11.0766	36.40	4.08	30.17	3.97	67350	290.3	512.150	251.9	11.0766	36.40	4.08	30.17	3.97	67350
225	61730	291.6	512.225	253.2	11.0854	36.93	4.12	30.22	4.01	67350	291.6	512.225	253.2	11.0854	36.93	4.12	30.22	4.01	67350
226	61730	292.9	512.300	254.5	11.0942	37.46	4.16	30.27	4.05	67350	292.9	512.300	254.5	11.0942	37.46	4.16	30.27	4.05	67350
227	61730	294.2	512.375	255.8	11.1030	37.99	4.20	30.32	4.09	67350	294.2	512.375	255.8	11.1030	37.99	4.20	30.32	4.09	67350
228	61730	295.5	512.450	257.1	11.1118	38.52	4.24	30.37	4.13	67350	295.5	512.450	257.1	11.1118	38.52	4.24	30.37	4.13	67350
229	61730	296.8	512.525	258.4	11.1206	39.05	4.28	30.42	4.17	67350	296.8	512.525	258.4	11.1206	39.05	4.28	30.42	4.17	67350
230	61730	298.1	512.600	259.7	11.1294	39.58	4.32	30.47	4.21	67350	298.1	512.600	259.7	11.1294	39.58	4.32	30.47	4.21	67350
231	61730	299.4	512.675	261.0	11.1382	40.11	4.36	30.52	4.25	67350	299.4	512.675	261.0	11.1382	40.11	4.36	30.52	4.25	67350
232	61730	300.7	512.750	262.3	11.1470	40.64	4.40	30.57	4.29	67350	300.7	512.750	262.3	11.1470	40.64	4.40	30.57	4.29	67350
233	61730	302.0	512.825	263.6	11.1558	41.17	4.44	30.62	4.33	67350	302.0	512.825	263.6	11.1558	41.17	4.44	30.62	4.33	67350
234	61730	303.3	512.900	264.9	11.1646	41.70	4.48	30.67	4.37	67350	303.3	512.900	264.9	11.1646	41.70	4.48	30.67	4.37	67350
235	61730	304.6	512.975	266.2	11.1734	42.23	4.52	30.72	4.41	67350	304.6	512.975	266.2	11.1734	42.23	4.52	30.72	4.41	67350
236	61730	305.9	513.050	267.5	11.1822	42.76	4.56	30.77	4.45	67350	305.9	513.050	267.5	11.1822	42.76	4.56	30.77	4.45	67350
237	61730	307.2	513.125	268.8	11.1910	43.29	4.60	30.82	4.49	67350	307.2	513.125	268.8	11.1910	43.29	4.60	30.82	4.49	67350
238	61730	308.5	513.200	270.1	11.2000	43.82	4.64	30.87	4.53	67350	308.5	513.200	270.1	11.2000	43.82	4.64	30.87	4.53	67350
239	61730	309.8	513.275	271.4	11.2090	44.35	4.68	30.92	4.57	67350	309.8	513.275	271.4	11.2090	44.35	4.68	30.92	4.57	67350
240	61730	311.1	513.350	272.7	11.2180	44.88	4.72	30.97	4.61	67350	311.1	513.350	272.7	11.2180	44.88	4.72	30.97	4.61	67350
241	61730	312.4	513.425	274.0	11.2270	45.41	4.76	31.02	4.65	67350	312.4	513.425	274.0	11.2270	45.41	4.76	31.02	4.65	67350
242	61730	313.7	513.500	275.3	11.2360	45.94	4.80	31.07	4.69	67350	313.7	513.500	275.3	11.2360	45.94	4.80	31.07	4.69	67350
243	61730	315.0	513.575	276.6	11.2450	46.47	4.84	31.12	4.73	67350	315.0	513.575	276.6	11.2450	46.47	4.84	31.12	4.73	67350
244	61730	316.3	513.650	277.9	11.2540	47.00	4.88	31.17	4.77	67350	316.3	513.650	277.9	11.2540	47.00	4.88	31.17	4.77	67350
245	61730	317.6	513.725	279.2	11.2630	47.53	4.92	31.22	4.81	67350	317.6	513.725	279.2	11.2630	47.53	4.92	31.22	4.81	67350
246	61730	318.9	513.800	280.5	11.2720	48.06	4.96	31.27	4.85	67350	318.9	513.800	280.5	11.2720	48.06	4.96	31.27	4.85	67350
247	61730	320.2	513.875	281.8	11.2810	48.59	5.00	31.32	4.89	67350	320.2	513.875	281.8	11.2810	48.59	5.00	31.32	4.89	67350
248	61730	321.5	513.950	283.1	11.2900	49.12	5.04	31.37	4.93	67350	321.5	513.950	283.1	11.2900	49.12	5.04	31.37	4.93	67350
249	61730	322.8	514.025	284.4	11.2990	49.65	5.08	31.42	4.97	67350	322.8	514.025	284.4	11.2990	49.65	5.08	31.42	4.97	67350
250	61730	324.1	514.100	285.7	11.3080	50.18	5.12	31.47	5.01	67350	324.1	514.100	285.7	11.3080	50.18	5.12	31.47	5.01	67350
251	61730	325.4	514.175	287.0	11.3170	50.71	5.16	31.52	5.05	67350	325.4	514.175	287.0	11.3170	50.71	5.16	31.52	5.05	67350
252	61730	326.7	514.250	288.3	11.3260	51.24	5.20	31.57	5.09	67350	326.7	514.250	288.3	11.3260	51.24	5.20	31.57	5.09	67350
253	61730	328.0	514.325	289.6	11.3350	51.77	5.24	31.62	5.13	67350	328.0	514.325	289.6	11.3350	51.77	5.24	31.62	5.13	67350
254	61730	329.3	514.400	290.9	11.3440	52.30	5.28	31.67	5.17	67350	329.3	514.400	290.9	11.3440	52.30	5.28	31.67	5.17	67350
255	61730	330.6	514.475	292.2	11.3530	52.83	5.32	31.72	5.21	67350	330.6	514.475	292.2	11.3530	52.83	5.32	31.72	5.21	67350
256	61730	331.9	514.550	293.5	11.3620	53.36	5.36	31.77	5.25	67350	331.9	514.550	293.5	11.3620	53.36	5.36	31.77	5.25	67350
257	61730	333.2	514.625	294.8	11.3710	53.89	5.40	31.82	5.29	67350	333.2	514.625	294.8	11.3710	53.89	5.40	31.82	5.29	67350
258	61730	334.5	514.700	296.1	11.3800	54.42	5.44	31.87	5.33	67350	334.5	514.700	296.1	11.3800	54.42	5.44	31.87	5.33	67350
259	61730	335.8	514.775	297.4	11.3890	54.95	5.48	31.92	5.37	67350	335.8	514.775	297.4	11.3890	54.95	5.48	31.92	5.37	67350
260	61730	337.1	514.850	298.7	11.3980	55.48	5.52	31.97	5.41	67350	337.1	514.850	298.7	11.3980	55.48	5.52	31.97	5.41	67350
261	61730	338.4	514.925	300.0	11.4070	56.01	5.56	32.02	5.45	67350	338.4	514.925	300.0	11.4070	56.01	5.56	32.02	5.45	67350
262	61730	339.7	515.000	301.3	11.4160	56.54	5.60	32.07	5.49	67350	339.7	515.000	301.3	11.4160	56.54	5.60	32.07	5.49	67350
263	61730	341.0	515.075	302.6	11.4250	57.07	5.64	32.12	5.53	67350	341.0	515.075	302.6	11.4250	57.07	5.64	32.12	5.53	67350
264	61730	342.3	515.150	303.9	11.4340	57.60	5.68	32.17	5.57	67350	342.3	515.150	303.9	11.4340	57.60	5.68	32.17	5.57	67350
265	61730	343.6	515.225	305.2	11.4430	58.13	5.72	32.22	5.61	67350	343.6	515.225	305.2	11.4430	58.13	5.72	32.22	5.61	67350
266	61730	344.9	515.300	306.5	11.4520	58.66	5.76	32.27	5.65	67350	344.9	515.300	306.5	11.4520	58.66	5.76	32.27	5.65	67350
267	61730	346.2	515.375	307.8	11.4610	59.19	5.80	32.32	5.69	67350	346.2	515.375	307.8	11.4610	59.19	5.80	32.32	5.69	67350
268	61730	347.5	515.450	309.1	11.4700	59.72	5.84	32.37	5.73	67350	347.5	515.450	309.1	11.4700	59.72	5.84	32.37	5.73	67350
269	61730	348.8	515.525	310.4	11.4790	60.25	5.88												

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275	64455	331.1	316.454	14.5	13.0186
276	64456	331.2	316.455	14.5	13.0186
277	64457	331.3	316.456	14.5	13.0186
278	64458	331.4	316.457	14.5	13.0186
279	64459	331.5	316.458	14.5	13.0186
280	64460	331.6	316.459	14.5	13.0186
281	64461	331.7	316.460	14.5	13.0186
282	64462	331.8	316.461	14.5	13.0186
283	64463	331.9	316.462	14.5	13.0186
284	64464	332.0	316.463	14.5	13.0186
285	64465	332.1	316.464	14.5	13.0186
286	64466	332.2	316.465	14.5	13.0186
287	64467	332.3	316.466	14.5	13.0186
288	64468	332.4	316.467	14.5	13.0186
289	64469	332.5	316.468	14.5	13.0186
290	64470	332.6	316.469	14.5	13.0186
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294	64474	333.0	316.473	14.5	13.0186
295	64475	333.1	316.474	14.5	13.0186
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299	64479	333.5	316.478	14.5	13.0186
300	64480	333.6	316.479	14.5	13.0186
301	64481	333.7	316.480	14.5	13.0186
302	64482	333.8	316.481	14.5	13.0186
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305	64485	334.1	316.484	14.5	13.0186
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308	64488	334.4	316.487	14.5	13.0186
309	64489	334.5	316.488	14.5	13.0186
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316	64496	335.2	316.495	14.5	13.0186
317	64497	335.3	316.496	14.5	13.0186
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329	64509	336.5	316.508	14.5	13.0186
330	64510	336.6	316.509	14.5	13.0186
331	64511	336.7	316.510	14.5	13.0186

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400.	1.23002	420.1	339.445	-88.4	-14.440	134.45	-38.81	133.29	-104.48	38440	-30	-32477	176
401.	1.23252	420.3	339.829	-89.3	-14.923	134.87	-39.41	133.81	-103.44	38487	-30	-32455	175
402.	1.23502	420.6	340.214	-90.4	-15.178	134.96	-42.43	134.21	-100.22	38502	-30	-32437	172
403.	1.23752	431.9	340.600	-91.3	-15.424	134.93	-89.30	134.49	-97.82	38597	-30	-32454	171
404.	1.24002	431.2	340.985	-92.2	-15.653	134.79	-86.20	134.44	-93.84	38641	-30	-32437	169
405.	1.24252	431.5	341.373	-93.1	-15.893	134.53	-83.16	134.48	-90.70	38685	-30	-32088	167
406.	1.24502	431.8	341.759	-94.0	-16.116	134.17	-80.14	134.40	-87.60	38730	-30	-22288	165
407.	1.24752	437.1	342.145	-94.9	-16.332	133.69	-77.20	134.40	-84.34	38825	-30	-21517	163
408.	1.25002	438.3	342.531	-95.8	-16.539	133.11	-74.31	134.09	-81.33	38922	-30	-20759	161
409.	1.25252	439.6	342.916	-96.7	-16.739	132.44	-71.49	133.48	-79.37	39071	-30	-20013	159
410.	1.25502	440.9	343.299	-97.6	-16.932	131.68	-68.73	132.16	-73.67	39213	-30	-19281	157
411.	1.25752	442.2	343.681	-98.5	-17.118	130.83	-66.05	132.39	-72.03	39355	-30	-18563	155
412.	1.26002	443.5	344.062	-99.4	-17.296	129.89	-63.43	131.84	-70.04	39498	-31	-17862	153
413.	1.26252	444.8	344.440	-100.3	-17.468	128.89	-60.90	131.04	-67.35	39640	-31	-17177	151
414.	1.26502	446.1	344.817	-101.3	-17.633	127.81	-58.44	130.16	-64.72	39783	-31	-16509	149
415.	1.26752	447.4	345.191	-102.3	-17.792	126.67	-56.06	129.20	-62.16	39925	-31	-15860	147
416.	1.27002	448.6	345.563	-103.1	-17.944	125.47	-53.76	128.17	-59.68	40068	-32	-15229	145
417.	1.27252	449.9	345.932	-104.0	-18.090	124.22	-51.53	127.07	-57.27	40210	-32	-14618	143
418.	1.27502	451.2	346.298	-104.9	-18.230	122.92	-49.39	125.91	-54.94	40353	-32	-14026	141
419.	1.27752	452.5	346.661	-105.8	-18.365	121.58	-47.33	124.70	-52.69	40496	-32	-13453	139
420.	1.28002	453.8	347.022	-106.6	-18.494	120.21	-45.35	123.44	-50.31	40639	-33	-12900	137
421.	1.28252	455.1	347.378	-107.7	-18.618	118.81	-43.43	122.13	-48.42	40782	-33	-12367	135
422.	1.28502	456.4	347.732	-107.7	-18.736	117.38	-41.63	120.79	-46.41	40925	-33	-11854	133

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SUMMARY

The information presented in this Final Scientific Report can be summarized as follows:

- 1.- One Mathematical Model has been established, determining the absolute motion of the droplets composing a cloud when an infinitely long body, whose arbitrary cross section is defined by up to 100 points, moves inside it, normally to its infinite span, and that, in addition, determines the trajectories described by these droplets, with respect to the profile limiting the cross section.

One parameter, nominated NSSF, has been included in the program to take into account the possibility of attenuate the effect, in the calculation of the air velocity, of the defining segments that are non sighted from the point where the air velocity is being calculated.

The Mathematical Model includes the expression that determines the ice growing in the case $F.F.=1$.

- 2.- One FORTRAN Program has been developed in base to that Mathematical Model. This Program, nominated AIPO7 (Aircraft Icing Processes, NO.7), permits in both, Manual and Automatic modes, to obtain the trajectories of the droplets with respect to the profile, presented in a normalized pattern at any desired angle of attack. The values of 13 different variables implicated in the calculations are printed, if so desired, step by step, along each trajectory.

When starting, the values of up to 24 parameters that determine the process and display of results are to be given to the computer by conversation with it using the adequate periphtric.

As a result, the AIPO7 Program presents a

great versatility.

In Manual Mode the initial ordinate of each trajectory is to be selected by the operator. On the contrary, in Automatic Mode all the trajectories are executed automatically by the computer according to the data given by the operator before running the program.

- 3.- Ten sets of trajectories, generated by the NACA 2409 profile, are presented in order to show some of the huge number of possibilities, concerning operation and display, yielded by the AIPO7 FORTRAN Program.

The value of the NSSF parameter, ranging from zero to one can be selected for each trajectory, or set of trajectories, and it is printed at the beginning of the tabulation, following the initial ordinate of each trajectory.

The sheet that presents each set of drawn trajectories is followed by the printed sheets containing the corresponding data and results. These results can be the tabulation (if desired) step by step of the values of the 13 mentioned variables and information concerning if the droplet hits the surface of the profile or if the dot that, on the paper, represents the droplet reaches the left hand side of the drawing.

CONCLUSIONS

- 1.- The information presented in this Final Scientific Report leads to the conclusion that the Primary Aim of the proposal denominated "Aircraft Icing Processes", submitted to the European Office of Aerospace Research and Development in February 1983, producing Grant.NO.AFOSR 83-0340, has been reached.
- 2.- The AIP07 FORTRAN Program, elaborated under that Proposal, has provisions to be expanded in order to reach new targets.

Torrejón de Ardoz, 7 November 1984

The Principal Investigator

-Ernesto Montiel R.-

VºBº

EL DIRECTOR DEL DEPARTAMENTO DE
AERODINAMICA Y NAVEGABILIDAD
-José Warleta Carrillo-

Warleta

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