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List of Symbols

a	sound velocity, lift curve slope (Eq.56)
C	pressure input rate (Eq.44)
c_{DP}	profile drag coefficient
c_f (fb)	skin friction coefficient (force balance data)
c_f (pp)	skin friction coefficient (Preston probe data)
c_p	specific heat at constant pressure
d	diameter, thickness, hole diameter
E	elasticity module
f	deformation, frequency
F	force
g	acceleration of gravity
g_r	reference acceleration of gravity
g_{SL}	sea level acceleration of gravity
$G(x)$	grating transfer function (Eq.36)
h	altitude
H	geopotential altitude
I	moment of inertia
K	recovery factor (Eq.25)
Kn	Knudsen number
l	length, wing chord, hole depth
L	correlation length of turbulence elements
m	mass
$m = 10/3$	coefficient of shearing contraction (Eq.40)
M	Mach number
n	number of vortices per second, natural frequency (Eq.42)
p	pressure
p_a	atmospheric or ambient pressure
p_{aSL}	sea level atmospheric pressure
p_s	static pressure
p_t	total or stagnation pressure
p_p	Pitot pressure
p_i	pressure at instrument (Eq.46)
p_o	input pressure (Eq.46)
Pr	Prandtl number
$p_{\alpha 1}, p_{\alpha 2}$	pressures at angle of attack holes
p_{or}, p_{sr}	auxiliary pressure functions plotted in Fig.68(b)
$q = \frac{1}{2} \rho v^2$	kinetic pressure
q_c	impact pressure
Q	mass flow
r	radius
r_n	distance between resultant normal force and pivot (Eq.56)
R	gas constant
$R(y)$	correlation function of turbulent fluctuations
Re	Reynolds number
S	Strouhal number, area, vane area
t	time
t_R	response time
T	temperature
T_a	ambient temperature
T_p	probe temperature
T_t	total temperature
T_o	stagnation temperature in a boundary layer ($T_o = T_t$ for adiabatic walls)
u, v	velocity components in a three dimensional boundary (Fig.14)

v	air speed
v_c	calibrated air speed
v_e	equivalent air speed
v_t	true air speed
v_o^*	shear stress velocity, $v_o^* = \sqrt{\tau_o/\rho}$
v'	amplitude of fluctuating velocity component
V_i	volume of instrument
V_1	volume of tube
w	width of rake strut
x_b, y_b, z_b	body coordinates
x_w, y_w, z_w	wind coordinates

Greek Symbols

α	angle of attack
β	sideslip angle, coefficient (Eq.41)
β	slope of linear approximation of atmospheric temperature with altitude (Eq.8)
β_o	offset angle (Eq.56)
β_R	amplitude after the lapse of time t_R (Eq.59)
γ	ratio of specific heats
δ	dislocation of geometric probe centre by boundary layer effects (Fig.28)
λ	thermal conductivity, diameter of turbulence elements
μ	dynamic viscosity
ν	kinematic-viscosity
ρ	density
τ_o	wall shear stress
τ_i	time delay
χ	hypersonic interaction parameter
ξ	damping ratio (Eq.56)
$\omega = 2\pi f$	frequency
ω_n	natural frequency
ω_d	damped frequency

Subscripts

a	atmospheric
b	lower altitude limit of a layer
i	outer edge of boundary layer
w	wall
SL	sea level
i	instrument