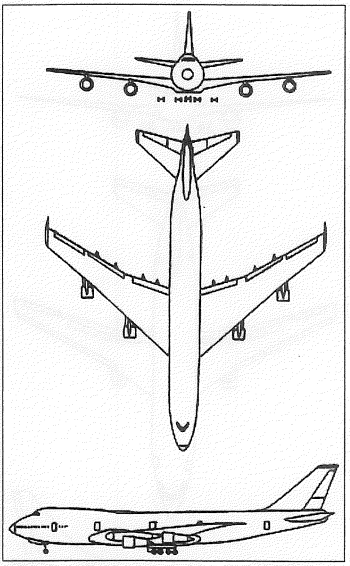

Figure C-A6.1 3D View of the Boeing B747 200 Aircraft
(Source: www.aviastar.org/index2.html)

Geometric Parameters and Typical Flight Conditions (see Appendix B, Aircraft 7)

$Alt. = 40{,}000$ ft, $Mach = 0.9$, $V_{P_1} = 871$ ft/sec, $\overline{q}_1 = 222.8$ lbs/ft^2, $\alpha_1 = 2.4°$
$S = 5{,}500$ ft^2, $\overline{c} = 27.3$ ft, $b = 196$ ft, $\overline{x}_{CG} = 0.25$, $W = 636{,}636$ lbs

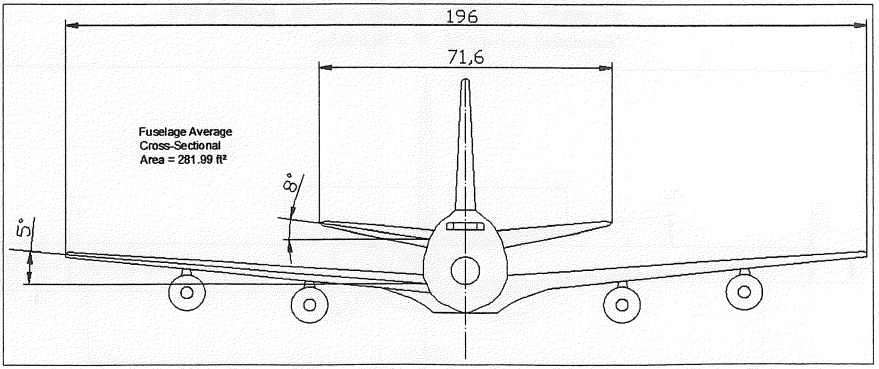

Figure C-A6.2 Front CAD View of the Boeing B747-200 Aircraft

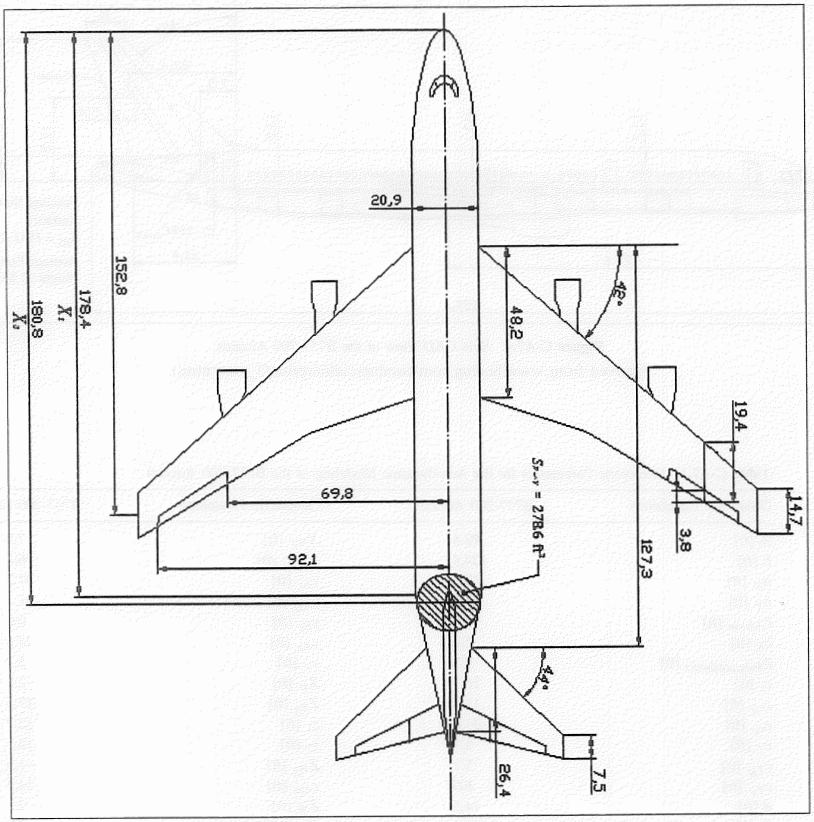

Figure C-A6.3 Top CAD View of the Boeing B747-200 Aircraft

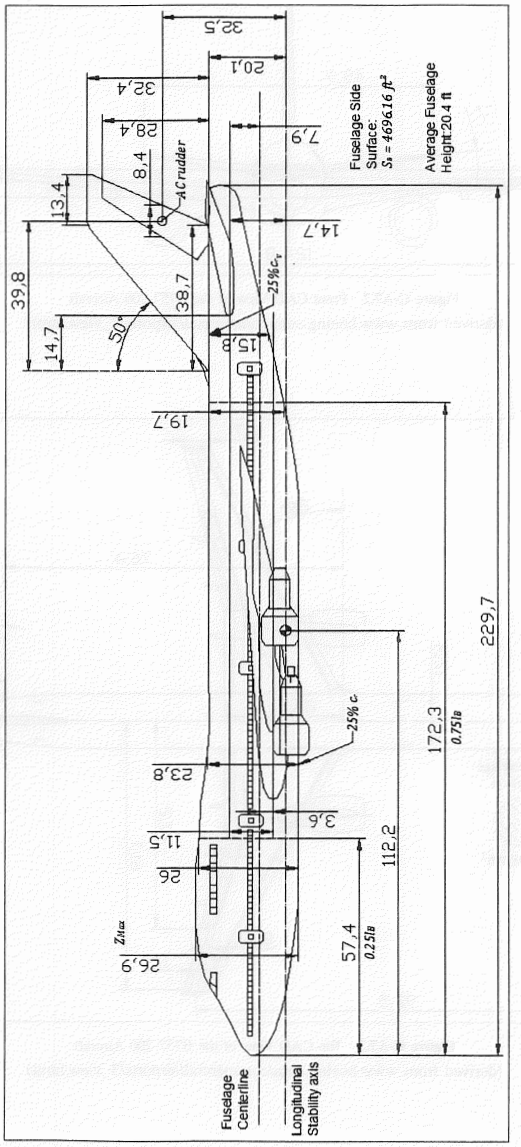

Figure C-A6.4 Side CAD View of the Boeing B747-200 Aircraft

Table C-A6.1 Geometric Parameters for the Aerodynamic Modeling of the Boeing B747-200 Aircraft

Geometric Parameters	B747 Aircraft	Geometric Parameters	B747 Aircraft
A [ft]	152.8	X_{HV} [ft]	14.7
b [ft]	196	X_{WH_r} [ft]	127.3
b_H [ft]	71.6	X_1 [ft]	178.4
b_V [ft]	32.4	y_{A_I} [ft]	69.8
$\bar{c}$ [ft]	27.3	y_{A_O} [ft]	92.1
$\bar{c}_{Aileron}$ [ft]	3.8	y_{R_I} [ft]	0
$\bar{c}_R$ [ft]	8.4	y_{R_F} [ft]	28.4
$\bar{c}_{Wing(atAileron)}$ [ft]	19.4	y_V [ft]	20.1
c_r [ft]	48.2	Z_H [ft]	−7.9
c_{r_H} [ft]	26.4	Z_{R_S} [ft]	32.5
c_{r_V} [ft]	38.7	z_1 [ft]	26
c_T [ft]	14.7	z_2 [ft]	19.7
c_{T_H} [ft]	7.5	Z_{H_S} [ft]	−14.7
c_{T_V} [ft]	13.4	$z_{\max}$ [ft]	26.9
d [ft]	23.7	Z_W [ft]	3.6
l_b [ft]	229.7	Z_{WH_r} [ft]	11.5
l_{cg} [ft]	112.2	Γ_H [deg]	8
r_1 [ft]	15.8	Γ_W [deg]	5
S [ft^2]	5500	ε_H [deg] (assumed)	2
S_{B_S} [ft]	4696.2	ε_W [deg] (assumed)	2
$S_{f_{AVG}}$ [ft^2]	282.0	Λ_{LE} [deg]	41.5
$S_{P\to V}$ [ft^2]	278.6	Λ_{LE_H} [deg]	44
$w_{\max}$ [ft]	20.9	Λ_{LE_V} [deg]	50
X_{AC_R} [ft]	39.8		