STANDARD UWAL DATA NAMES

All data names have a maximum length of eight (8) characters and are case-insensitive.
Data names can only consist of numbers, letters, and the underscore symbol (_)
These rules should be followed when determining auxiliary data names.
Some of the data are constants for a run (such as the wing area), others are variables (such as alphai).
UWAL abbreviations:

WOZ = Wind-Off Zero. Conditions before a run when the balance reads zero and the wind is off.
EWOZ = End-Wind-Off Zero. Conditions after a run when the balance reads ≈ zero and the wind is off.
WONZ = Wind-On Zero. Conditions during a run when α and $\psi = 0$.
(For classical blockage corrections only).

TestNo = UWAL-assigned test number (four digits)
Code = Data type code. (e.g. 0 is normal tp; 1 is WOZ tp; 6 is EWOZ tp; 7 WONZ tp; 8 ignore tp)
Run = Run number
TP = Test point number within a run
SP = Pressure scan position for a testpoint

LIFTR = raw lift read from the balance (lbs)
DRAGR = raw drag read from the balance (lbs)
PMR = raw pitching moment read from the balance (in-lbs)
YMR = raw yawing moment read from the balance (in-lbs)
RMR = raw rolling moment read from the balance (in-lbs)
SFR = raw side force read from the balance (lbs)
DELH = Horizontal tail angle (deg)
Fouling = Strut fouling
PAtmo = Atmospheric pressure, (in of Hg)
TAtmo = Atmospheric temperature, (°F)

CORRECTED BALANCE DATA

L_WOZ = Lift value after wind-off zero (static) values have been subtracted (lbs)
D_WOZ = Drag value after wind-off zero (static) values have been subtracted (lbs)
PM_WOZ = Pitching moment value after wind-off zero (static) values have been subtracted (in-lbs)
YM_WOZ = Yawing moment value after wind-off zero (static) values have been subtracted (in-lbs)
RM_WOZ = Rolling moment value after wind-off zero (static) values have been subtracted (in-lbs)
SF_WOZ = Side force value after wind-off zero (static) values have been subtracted (lbs)
Run_WOZ = Run from which the WOZ values were recorded

LB = L_WOZ value corrected for balance interactions and extra tares (lbs)
DB = D_WOZ value corrected for balance interactions and extra tares (lbs)
PMB = PM_WOZ value corrected for balance interactions, extra tares, & weight tare effects (in-lbs)
YMB = YM_WOZ value corrected for balance interactions and extra tares (in-lbs)
RMB = RM_WOZ value corrected for balance interactions, extra tares, & weight tare effects (in-lbs)
SFB = SF_WOZ value corrected for balance interactions and extra tares (lbs)

WEIGHT TARE EFFECTS

PMWT = Static, wind-off pitching moment weight tare value corrected for balance interactions (in-lbs)
RMWT = Static, wind-off rolling moment weight tare value corrected for balance interactions (in-lbs)

EXTRA TARE EFFECTS

LIFTTARE = Sum of extra tares to be applied to lift (lbs)
DRAGTARE = Sum of extra tares to be applied to drag (lbs)
SFTARE = Sum of extra tares to be applied to side force (lbs)
PMTARE = Sum of extra tares to be applied to pitching moment (in-lbs)
YMTARE = Sum of extra tares to be applied to yawing moment (in-lbs)
RMTARE = Sum of extra tares to be applied to rolling moment (in-lbs)

DYNAMIC PRESSURE

Deltaq = Difference in dynamic pressure from the desired test q, Qnom (psf)
qnom = Nominal dynamic pressure (psf)
qa = Actual dynamic pressure, qnom + Deltaq (psf)
qc = Dynamic pressure corrected for blockage effects, qa*(1+bcfactor)^2 (psf)
esb = Solid blockage factor from classical blockage correction method.
ewb = Wake blockage factor from classical blockage correction method.
bcfactor = Blockage effect = (1+esb+ewb)**2
BC_KA = Shape factor for airfoil sections on the model
BC_KB = Shape factor for bodies of revolution on the model
BC_KW = Wing separation factor (specified by UWAL)
BC_VA = Volume of airfoils on the model (ft^3)
BC_VB = Volume of bodies of revolution on the model (ft^3)
BC_A1 = Factor based on aspect ratio
BC_A2 = Factor based on flaps

WALL CORRECTIONS

Lift_Run = Run that has lift values for use in wall corrections
LiftW = Lift of the wing using LB from a tail-off or wing-only run (lbs)
CLW = CL of the wing using LB from a tail-off or wing-only run (lift set).
delw = Wall correction constant for wing
delas = Wall correction constant for horizontal tail
dCMdDs = dCM/dds value, change in pitching moment due to a change in horizontal tail angle
dAlphaWC = Change in alpha due to wall corrections
dCM_WC = Change in CM due to wall corrections
dCD_WC = Change of CD due to wall corrections

ANGULARITY CORRECTIONS

Upflow = Tunnel upflow angle (deg)
dCD_Ang = Change in CD due to upflow

MODEL POSITION

Alphai = Indicated model angle of attack, alpha, from either an encoder or accelerometer (deg)
AlphaEnc = Model angle of attack from UWAL pitch encoder (deg)
AlphaAcc = Model angle of attack from model accelerometer (deg)
AlphaC = Model angle of attack corrected for specified corrections (i.e. wall effects and upflow)
Psi = Model angle of yaw, psi (deg)
Beta = Model angle of side slip = negative Psi (deg).

FINAL COEFFICIENTS (w/specified corrections applied)

SA = Transferred to the stability axis
WA = Wind axis (balance reference frame)
BA = Transferred to the body axis

CLWA = Coefficient of lift
CDWA = Coefficient of drag
CDPWA = Coefficient of parasite drag, = CDWA - $CLWA^2$ / (AR * pi)
CMWAxx = Coefficient of pitching moment about the specified model moment center, e.g. CMWA25
CNWAxx = Coefficient of yawing moment about the specified model moment center, e.g. CNWA25
CRWAxx = Coefficient of rolling moment about the specified model moment center, e.g. CRWA25
CYWA = Coefficient of side force.

CLSA = Coefficient of lift
CDSA = Coefficient of drag
CDPSA = Coefficient of parasite drag, = CDSA - $CLSA^2$ / (AR * pi)
CMSAxx = Coefficient of pitching moment about the specified model moment center, e.g. CMSA25
CNSAxx = Coefficient of yawing moment about the specified model moment center, e.g. CNSA25
CRSAxx = Coefficient of rolling moment about the specified model moment center, e.g. CRSA25
CYSA = Coefficient of side force.

CLBA = Coefficient of lift, also known as CZ (force in z axis of body)
CDBA = Coefficient of drag, also known as CX (force in x axis of body)
CDPBA = Coefficient of parasite drag, = CDBA - $CLBA^2$ / (AR * pi)
CMBAxx = Coefficient of pitching moment about the specified model moment center, e.g. CMBA25
CNBAxx = Coefficient of yawing moment about the specified model moment center, e.g. CNBA25
CRBAxx = Coefficient of rolling moment about the specified model moment center, e.g. CRBA25
CYBA = Coefficient of side force.

TRIM COEFFICIENTS (for stability axis only)

CLTxx = CLtrim about the specified model moment center,
CLSA + (CMSAxx * MAC)) / (lhxx * Cos(AlphaC * pi/180))
CDPxx = CDSA - $CLTxx^2$ / (AR * pi)
CDI = Coefficient of induced drag, $CLSA^2$ / (AR * pi)

MOMENT TRANSFERS

MMCxx = Model Moment Center (%MAC)
gammaxx = Angle of rotation from tunnel centerline to MMCxx, e.g. gamma25 (deg)
axx = Distance from the trunnion to model moment center, e.g. a25 (in)
lhxx = Horizontal distance from model moment center to the horizontal tail aerodynamic center (in)
PMBxx = PMB transferred to the specified model moment center, e.g. PMB25 (in-lbs)
RMBxx = RMB transferred to the specified model moment center, e.g. RMB25 (in-lbs)
YMBxx = YMB transferred to the specified model moment center, e.g. YMB25 (in-lbs)

MISCELLANEOUS

Re_MAC = Reynolds number based on mean aerodynamic chord (MAC)
Re_b = Reynolds number based on b
Re_ft = Reynolds number per foot
Mach = Mach number based upon qc, PAtmo, TAtmo
Speedfps = Airspeed based upon qc (ft/sec)
CA = Actual cross-sectional area of the test section (ft^2)
CA_ref = Reference cross-sectional area of the test section (ft^2)

GEOMETRY CONSTANTS **(constant for a run)**

Sw = Surface area of the wing (ft^2)
MAC = Mean aerodynamic chord of the wing (in)
b_ref = Reference wing span (in)
b_act = Actual wing span (in)
d = Vertical distance from wing aerodynamic center to balance moment center at alpha = 0 deg. (in)
AR = Wing aspect ratio = b_ref^2 / Sw
lto = Horizontal distance from wing aerodynamic center to horizontal tail aerodynamic center (in)
tto = Vertical distance from wing aerodynamic center to horizontal tail aerodynamic center (in)

NOTES ABOUT NAMING ADDITIONAL VARIABLES:

Coefficients of pressure are referred to as CP.
Raw hinge moments are named “HM” + first letter of the control surface. Example: HME for elevator.
Coefficients of hinge moments are named CH + first letter of control surface. Example: CHE for elevator
Extra tares that have been normalized by dynamic pressure should be named “N” + component name.
Example: NLIFT for dlift/q tare data.