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function [alpha,deltae] = trim(aircraft,h,v)
%TRIM Trim AOA and elevator deflection angles
% Inputs are:
% aircraft :a struct aircraft data in SI
% h         :a numeric array of Mx1 aircraft altitude in m
% v         :a numeric array of Mx1 aircraft velocity in m/s
%
% Outputs are:
% alpha     :a numeric array of Mx1 angle of attack in rad
% deltae    :a numeric array of Mx1 elevator deflection in rad

arguments
    aircraft {mustBeA(aircraft,"struct")}
    h (:,1) {mustBeNumeric, mustBeReal}
    v (:,1) {mustBeNumeric, mustBeReal}
end

W = aircraft.W;
S_w = aircraft.S_w;
S_t = aircraft.S_t;
h_cm = aircraft.h_cm;
h_ac = aircraft.h_ac;
V_H = aircraft.V_H;

Cl_0 = aircraft.Cl_0;
Cl_alpha = aircraft.Cl_alpha;
Cl_deltae_t = aircraft.Cl_deltae_t;

Cm_0 = aircraft.Cm_0;
Cm_alpha = aircraft.Cm_alpha;

[~,~,rho] = stdatm(h);

Cw = W./(0.5.*rho.*v.^2.*S_w);
Cl_deltae = (S_t./S_w).*Cl_deltae_t;
Cm_deltae = Cl_deltae.*(h_cm-h_ac)-Cl_deltae_t.*V_H;

trim_cond = [Cl_alpha,Cl_deltae;Cm_alpha,Cm_deltae]\[Cw-Cl_0;-Cm_0];
alpha = trim_cond(1);
deltae = trim_cond(2);
end
```