```matlab
function Vb_out = calc_Vb(startPos,endPos,recPos,Vc,crack_boom_diff)
% Vb_out = calc_Vb(startPos,endPos,recPos,Vc,crack_boom_diff)
%
% Compute bullet velocity, given:
%   startPos        Position where shot originated [x, y, z]
%   endPos          Postition where shot was aimed
%   recPos          Position of the sound recorder
%   Vc              Speed of sound
%   crack_boom_diff Difference in seconds between the crack and boom
%
% Output:
%   Vb              Velocity of the bullet when passing perpendicular to
%                   the sound recorder. (Point of closest approach.)
%
% Example:
%   calc_Vb(shooter,Podium(1,:)+[0.0 0.2 0.0],Podium(1,:),c,0.221)
%   ans = 827.9 %2716fps

h = point_to_line_distance(recPos,startPos,endPos);
b = sqrt(norm(startPos-recPos)^2 - h^2);
syms Vb;
eq1 = crack_boom_diff - sqrt(b^2+h^2)/Vc + b/Vb + h*sqrt(Vb^2-Vc^2)/(Vc*Vb) == 0;
sol = vpasolve(eq1,Vb);
Vb_out = double(sol);
```