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Title : A CORRELATION STUDY OF THE WING-BODY INTERFERENCE FACTOR FOR HIGH ANGLES OF ATTACK		*Document No.* PD EA 9101 *Date of issue*: January 91
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Abstract : In this study a method is presented for estimating the wing-body interference factor, K_w for slender configurations through subsonic, transonic and supersonic speed ranges. This method can predict the interference factor upto angles of attack of about 30°. The method makes use of a limited experimental data base for K_w available in the literature. The data has been correlated against a single parameter $1-M^2 \sin^2\alpha$ which accounts for free stream Mach number as well as angle of attack. Least square polynomial curve fits have been used for the correlated data for various wing aspect ratios and tapers. Three way linear interpolation has been adopted to estimate the K_w from the curve fitted data against aspect ratio, taper ratio and the ratio of body radius to fin semispan (inclusive of body). For M = .8, the data does not correlate with this parameter and hence direct interpolation of K_w for this Mach number has been adopted. The factor K_w obtained by this method accounts for the effects due to loss of upwash as well as decrease in dynamic pressure at higher angles of attack and Mach numbers, and is predicted within ±10 percent accuracy. The method is however limited to wings of low aspect ratio (<4.0 , typical of fins used in conventional missiles) with zero or small trailing edge sweep angles.