FLIGHT EXPERIENCE WITH THE KASPER BKB-1 TAILLESS GLIDER

By Dezso George-Falvy
Consulting Engineer,
Ad Astra Aviation

Presented at the National Soaring Museum Flying Wing Symposium
Elmira, N.Y., July 17, 1997

BKb-1 ~ MAIN DESIGN DATA AND PERFORMANCE ESTIMATES

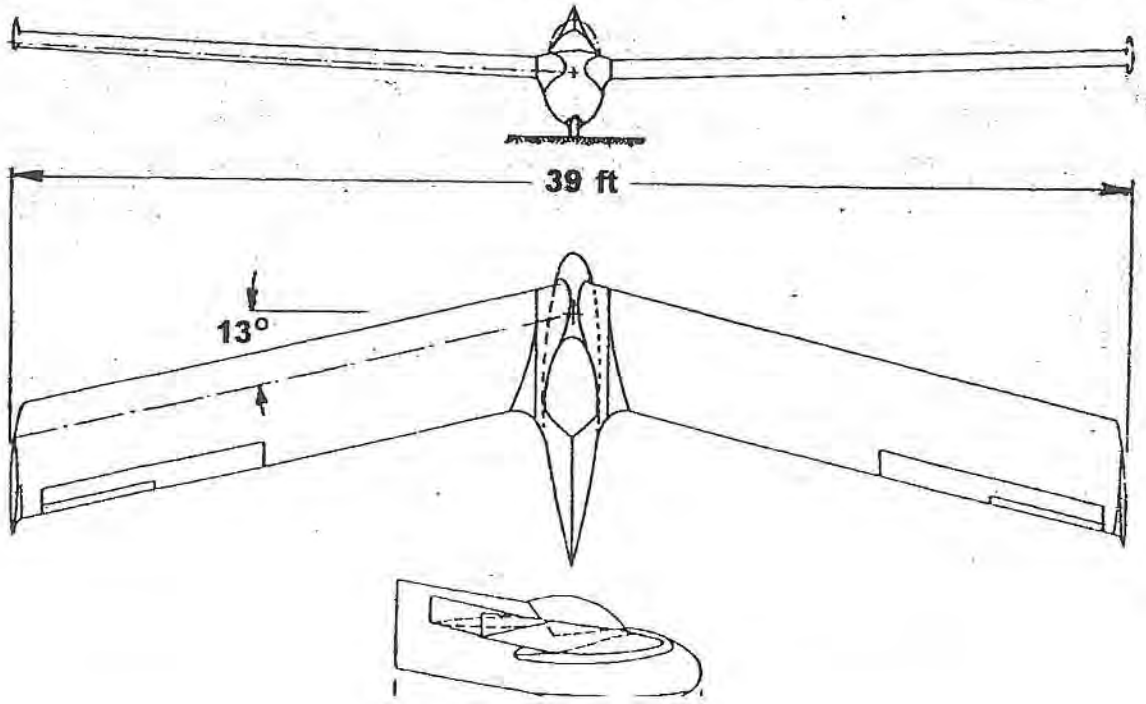
Span. . . . . b = 39 ft
Wing Area . . . . . S = 155 ft²
Aspect Ratio . . . . . AR = 9.81
Wing Chord . . . . . c = 4 ft
Airfoil . . . . . .NACA 8-H-12
L.E. Sweep . . . . . Λ = 13°

Max. Glide Ratio . . . . L/D_{max} = 28
» » » @ . . Vc = 51 mph

Min. Sink Rate . . . . . w_{min} = 150 ft/min
» » ». . . . . @ . . . . Vc = 43 mph

Weight Empty . . . . . W_e = 370 lb
Flight Weight (max.) . . . W = 573 lb
Wing Loading . . . . . W/S = 3.68 lb/ft²

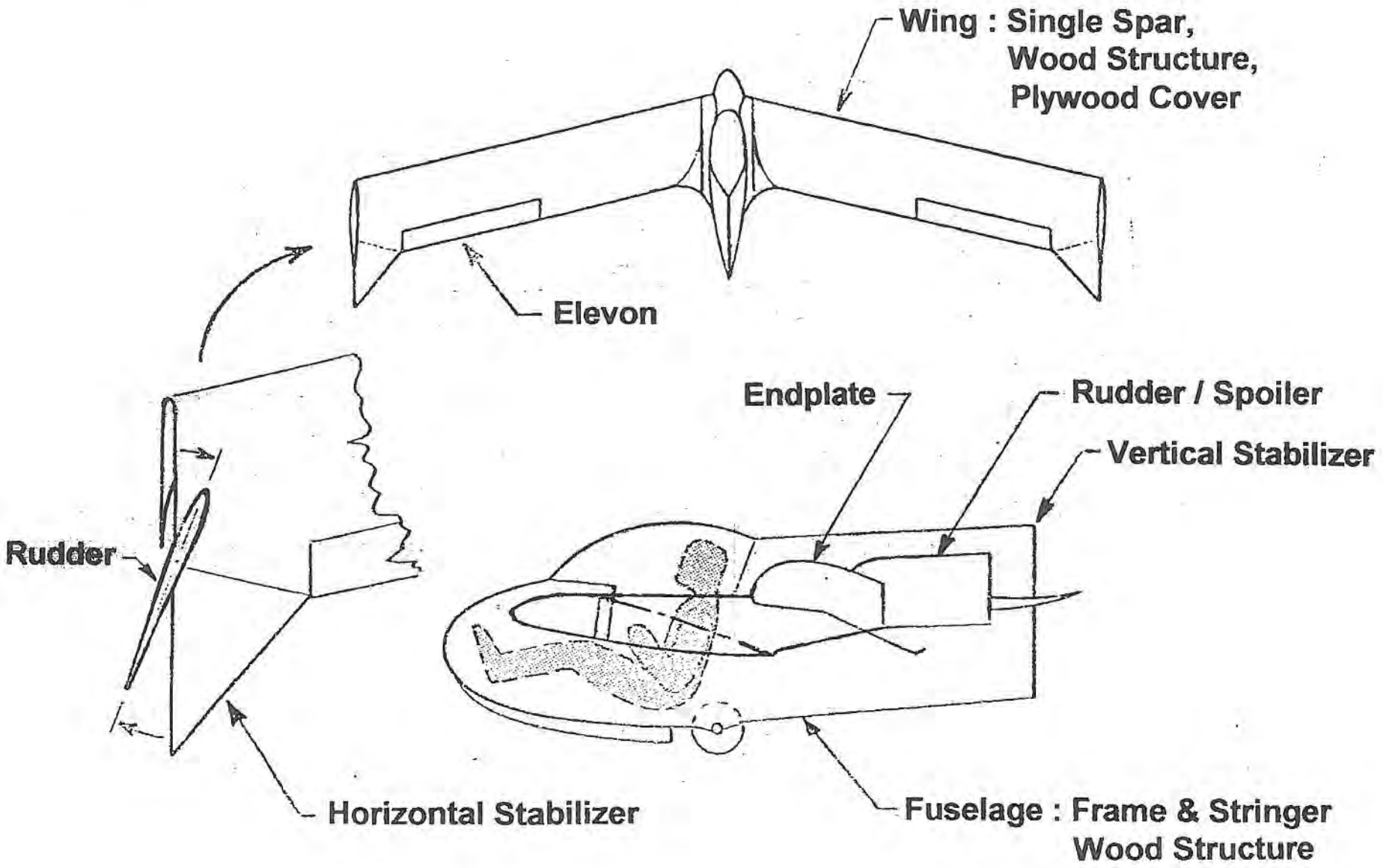
Stall Speed . . . . . Vc = 34 mph
Max. Lift Coefficient . C_{Lmax} = 1.24
Min. Drag Coefficient . C_{Dmin} = 0.0125



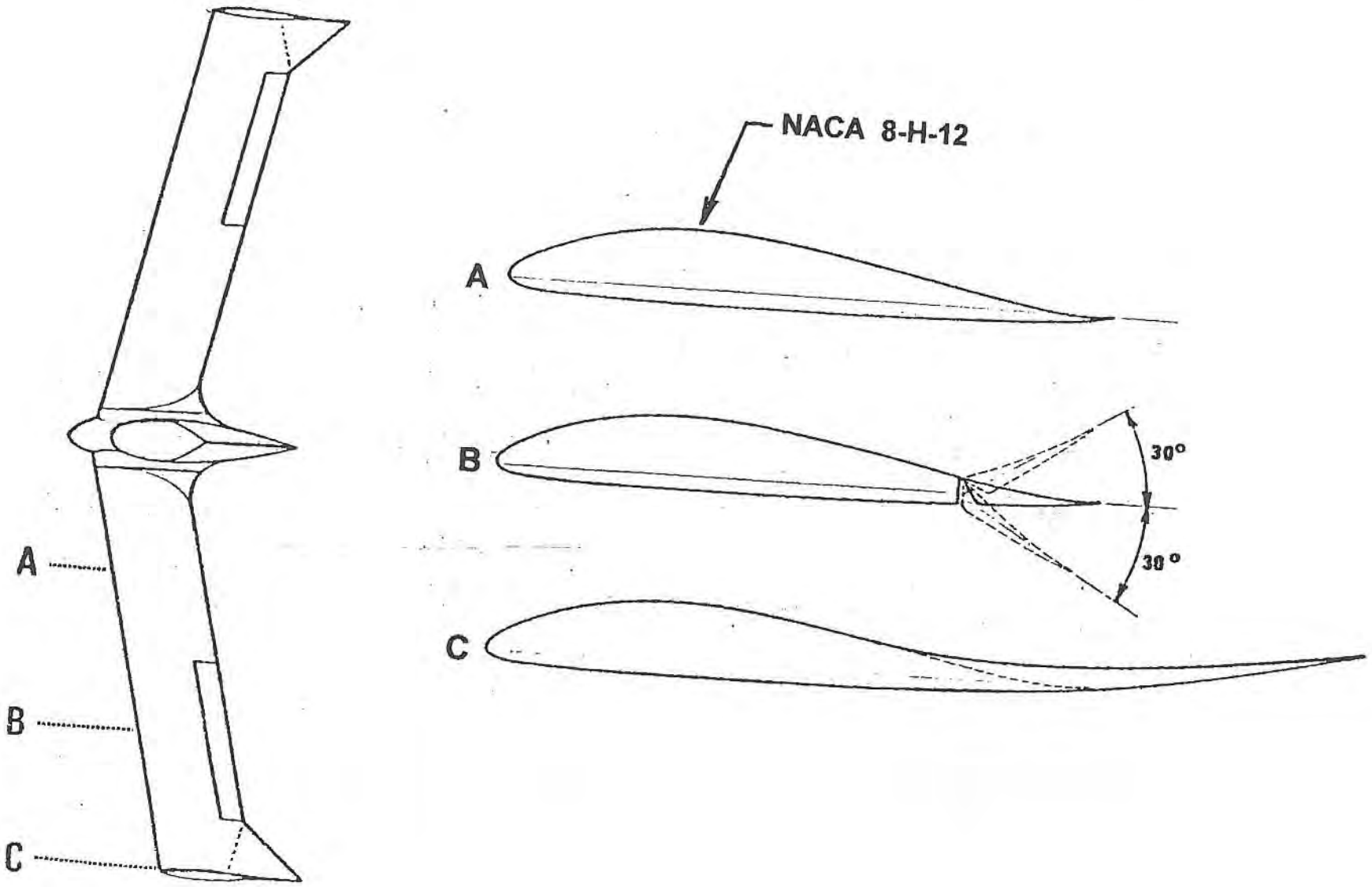
BKB-1 In Flight

BKB-1 At Take-off

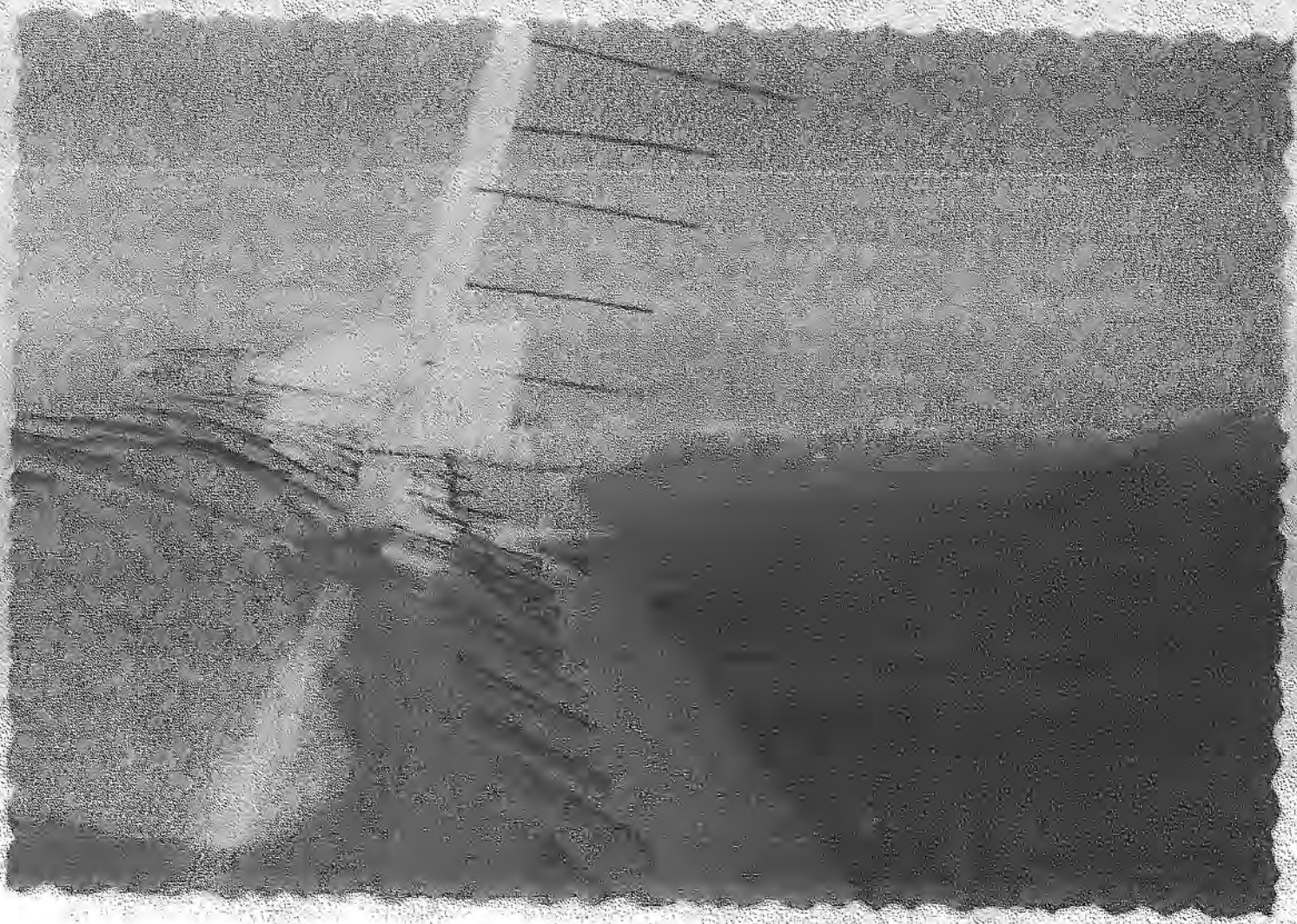
DESIGN FEATURES OF THE KASPER BKB-1



BKB - 1 WING SECTIONS

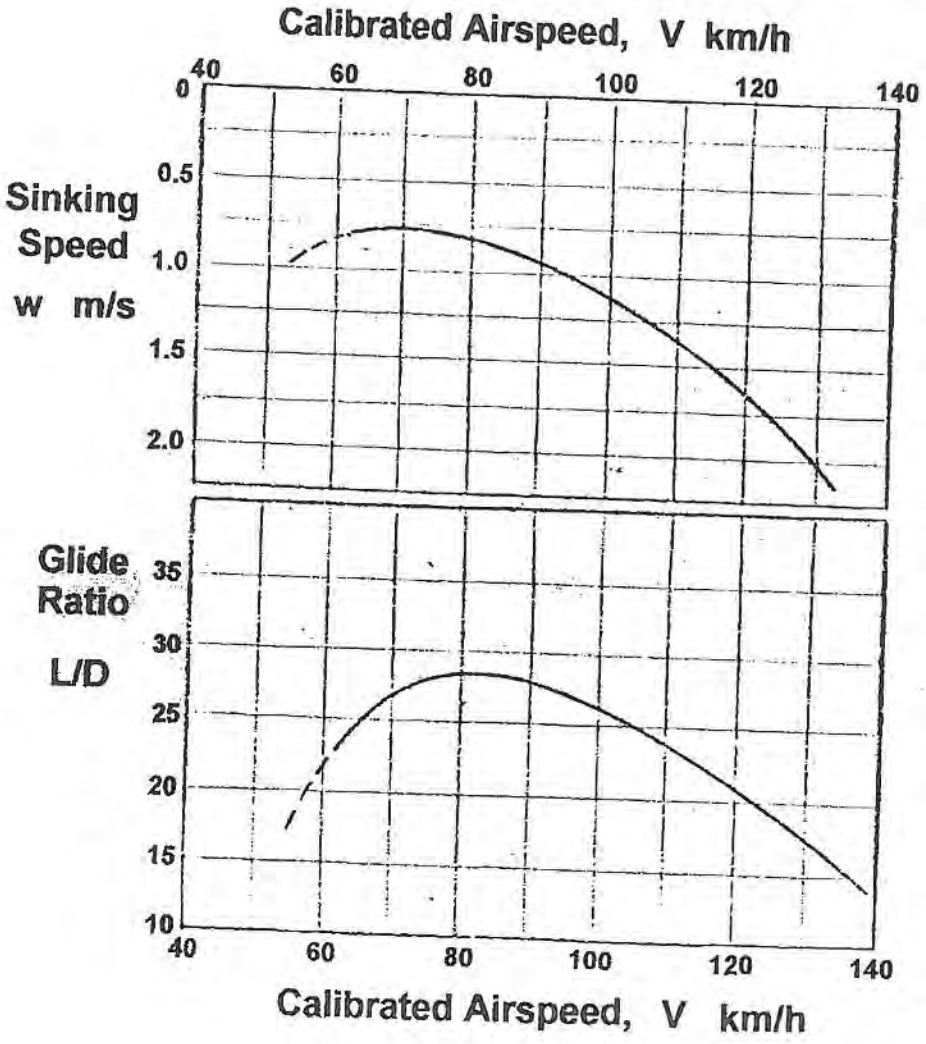


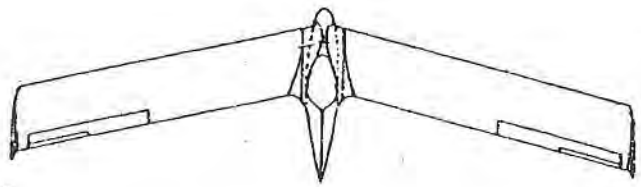
EVIDENCE OF VORTEX-FLOW 0N THE BKB-1 WING

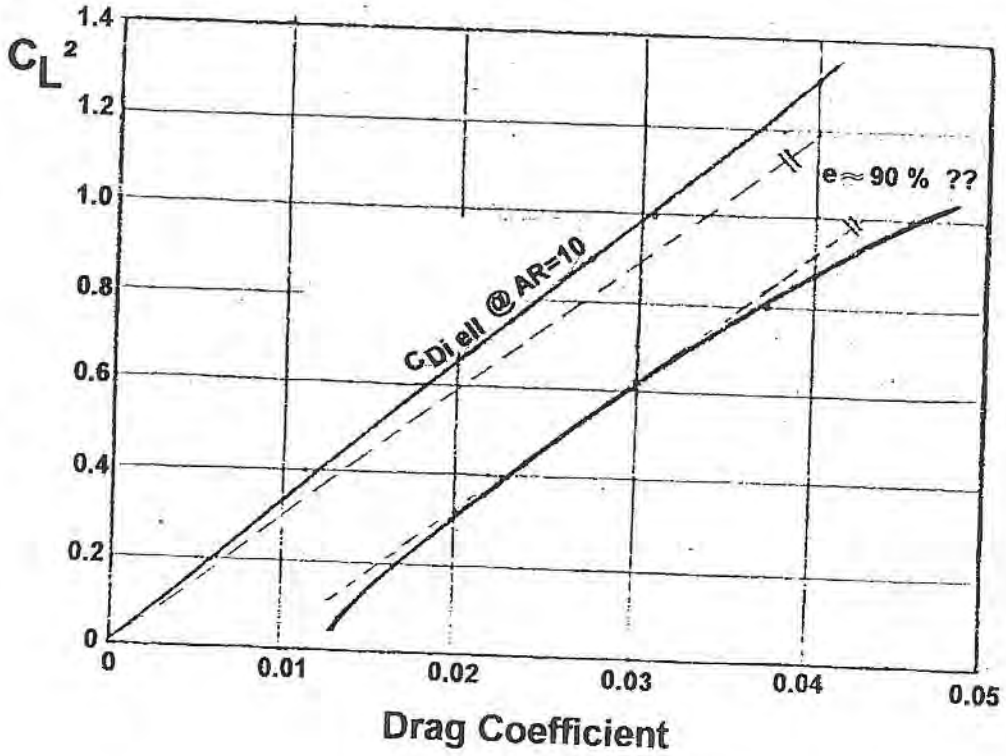


ESTIMATED PERFORMANCE OF THE BKB - 1

W = 573 lb (260 kg) W/S = 3.68 lb/ft² (18.0 kg/m²)







FLIGHT EXPERIENCE WITH THE BKB-1 TAILLESS GLIDER

Conclusions:

- High sensitivity to pitch control
- Severe adverse yaw due to aileron application
- Coordinated turns can be flown with rudder control alone
- If one can abstain from using aileron, handling characteristics are quite pleasant
- Glide performance seems to be better than that of conventional sailplanes of similar span and aspect ratio
- No measurements of actual performance were ever made
- Claims of extreme low speed capability coupled with low sink rates are not substantiated.
- The "Vortex Lift" phenomenon does occur, but it gives only a temporary boost in low speed flight characteristics