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Fuselage interference effects on flap characteristics

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THE PREPARATION OF THIS DATA ITEM

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FUSELAGE INTERFERENCE EFFECTS ON FLAP CHARACTERISTICS

CONTENTS

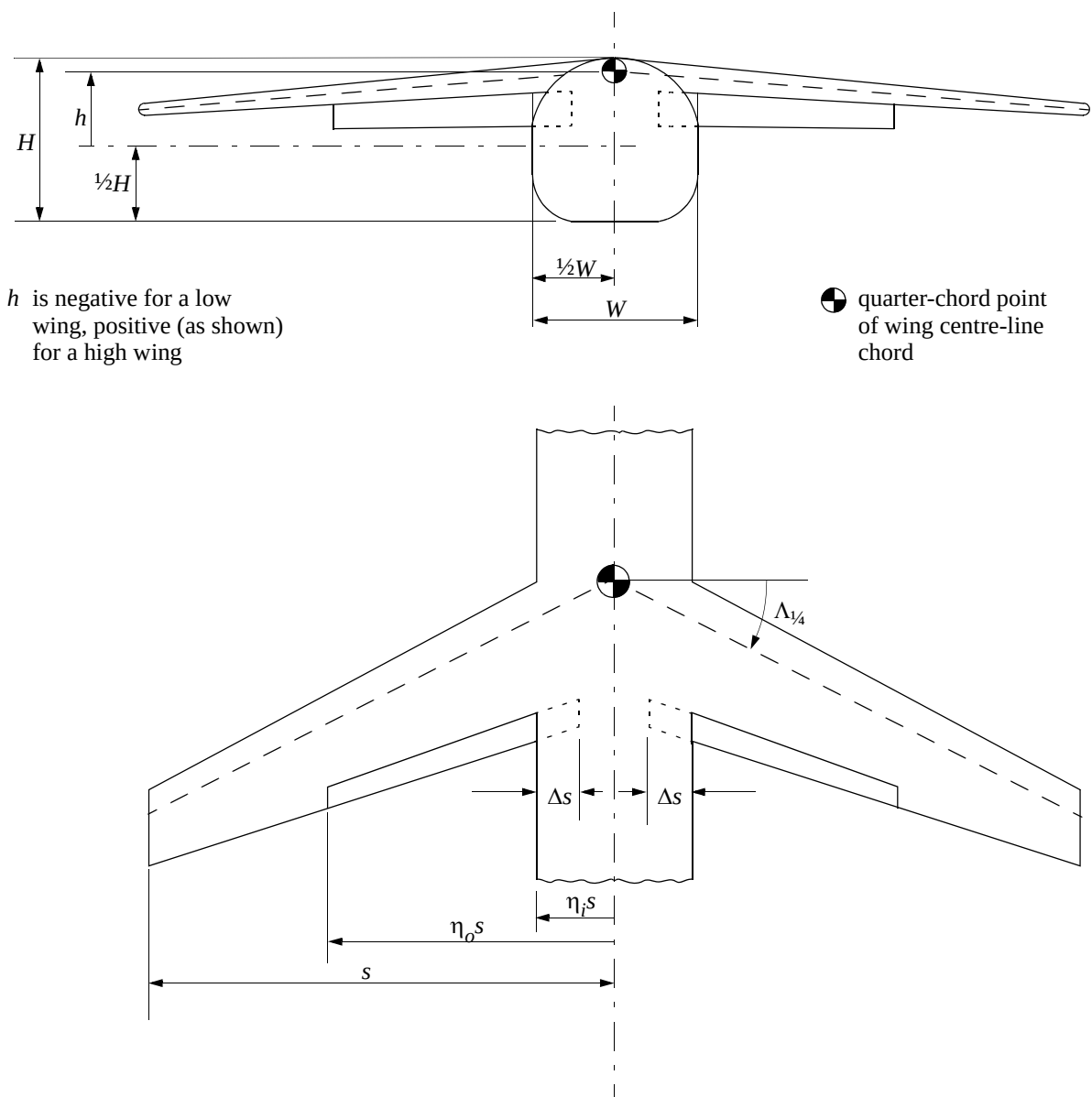
	Page
1. NOTATION AND UNITS	1
2. INTRODUCTION	3
3. METHOD	3
3.1 Lift and Pitching Moment Coefficient Increments	3
3.2 Drag Coefficient Increment at Zero Lift	4
4. ACCURACY AND APPLICABILITY	4
5. DERIVATION AND REFERENCES	4
5.1 Derivation	4
5.2 References	6
6. EXAMPLE	7

FUSELAGE INTERFERENCE EFFECTS ON FLAP CHARACTERISTICS

1. NOTATION AND UNITS

		SI	British
A	aspect ratio, b^2/S		
b	wing span, $2s$	m	ft
C_D	drag coefficient, $(drag)/qS$		
ΔC_{Dv0}	increment in trailing vortex drag coefficient due to deployment of trailing-edge flaps		
C_L	lift coefficient, $(lift)/qS$		
ΔC_{Lmaxt}	increment in wing maximum lift coefficient due to deployment of trailing-edge flaps		
ΔC_{L0tw}	increment in wing lift coefficient at zero angle of attack due to deployment of trailing-edge flaps		
C_m	pitching moment coefficient about quarter-chord point of aerodynamic mean chord, $(pitching-moment)/qSc$		
c	aerodynamic mean chord	m	ft
H	fuselage height, see Sketch 1.1	m	ft
h	height of quarter-chord point of wing centre-line chord above fuselage longitudinal centre-line, see Sketch 1.1	m	ft
K	constant used in estimation of vortex drag for part-span flaps		
q	free-stream kinetic pressure	N/m^2	lbf/ft^2
S	wing planform area	m^2	ft^2
s	wing semi-span	m	ft
Δs	fictitious extension of flap panel to allow for fuselage interference, see Sketch 1.1	m	ft
W	fuselage width, see Sketch 1.1	m	ft
η	spanwise distance from wing centre-line as fraction of semi-span		
η_i	value of η at inboard limit of flap panel		
η_o	value of η at outboard limit of flap panel		

$\Lambda_{1/4}$	wing quarter-chord sweep angle	deg	deg
λ	wing taper ratio (ratio of tip chord to centre-line chord)		
Φ	part-span factor as a function of η ; lift coefficient increment due to part-span flaps extending symmetrically from wing centre-line to η divided by lift coefficient increment due to full-span flaps at same flap setting and wing angle of attack		
Φ_i	value of Φ corresponding to $\eta = \eta_i$		
Φ_o	value of Φ corresponding to $\eta = \eta_o$		



Sketch 1.1 Wing-fuselage-flap geometry