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Effect of twin fins on isolated tailplane lift-curve slope

Associated software: ESDUpac A9109



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EFFECT OF TWIN FINS ON ISOLATED TAILPLANE LIFT-CURVE SLOPE

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EFFECT OF TWIN FINS ON ISOLATED TAILPLANE LIFT-CURVE SLOPE

1. NOTATION AND UNITS

		<i>SI</i>	<i>British</i>
A	geometric aspect ratio of tailplane, b^2/S_T		
A_E	effective aspect ratio of tailplane		
a_1	lift-curve slope of tailplane	rad^{-1}	rad^{-1}
$(a_1)_{T2F}$	lift-curve slope of tailplane with twin fins	rad^{-1}	rad^{-1}
b	tailplane span, see Sketch 1.1	m	ft
C_L	lift coefficient		
$\bar{c}$	aerodynamic mean chord of tailplane	m	ft
c_j	chord of tailplane at fin junction, see Sketch 1.1	m	ft
c_r	root chord of tailplane, see Sketch 1.1	m	ft
c_t	tip chord of tailplane, see Sketch 1.1	m	ft
d	distance of fins from tips of tailplane, see Sketch 1.1	m	ft
h	height of fins, $h_u + h_l$, see Sketch 1.1	m	ft
h_l	depth of fins below tailplane, see Sketch 1.1	m	ft
h_u	height of fins above tailplane, see Sketch 1.1	m	ft
M	free-stream Mach number		
$R_{\bar{c}}$	Reynolds number based on $\bar{c}$		
S_T	tailplane reference area	m^2	ft^2
β	Prandtl-Glauert compressibility parameter, $(1 - M^2)^{1/2}$		
$\Lambda_{1/2}$	sweepback angle of tailplane mid-chord line, see Sketch 1.1	deg	deg

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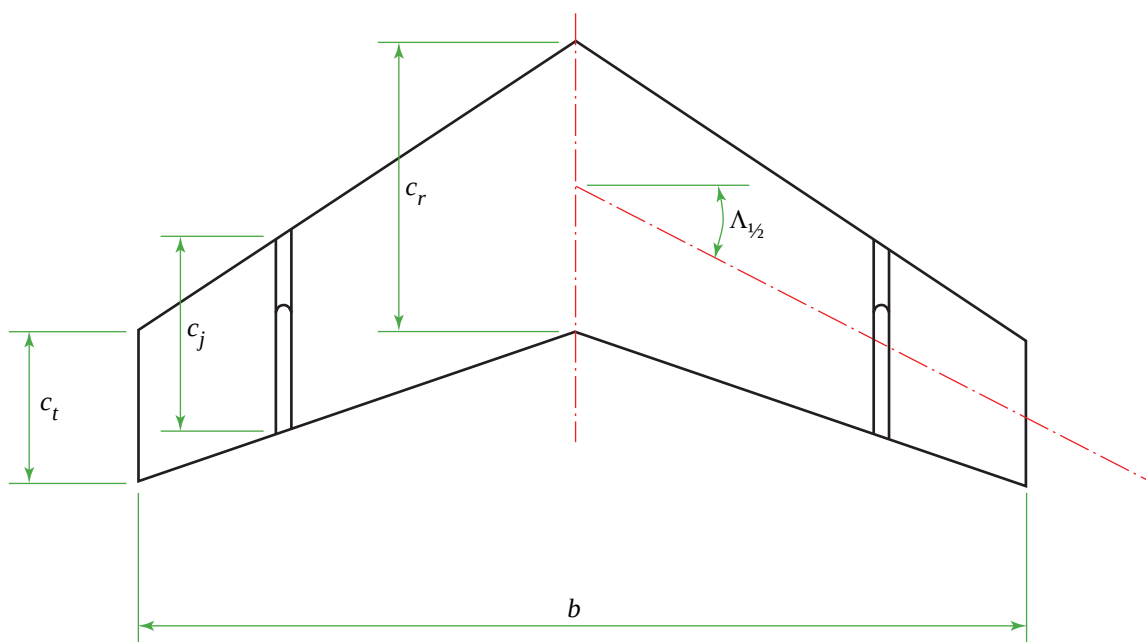
λ taper ratio of tailplane, c_t / c_r

λ_j taper ratio of tailplane inboard of fins, (λ for end fins), c_j / c_r

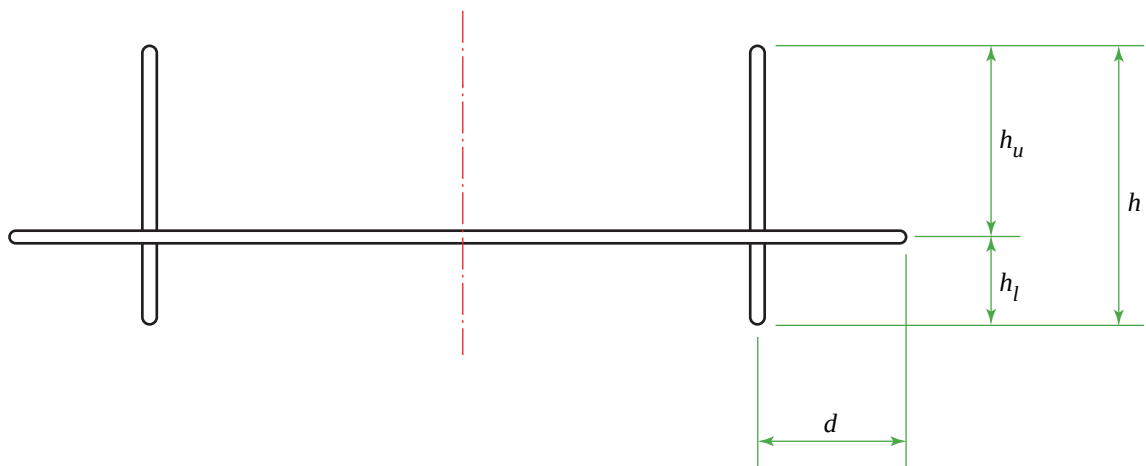
Subscripts

$()_{Expt}$ denotes experimental value

$()_{Pred}$ denotes predicted value



Sketch 1.1a Plan view of swept tailplane with twin fins



Sketch 1.1b Front view of swept or rectangular tailplane with twin fins

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