

Constants	Units	Description
$C_{L_{w,max}}$	[-]	Max lift coefficient, wing
M_{min}	[-]	Minimum Mach number
R_{req}	[nm]	Required total range
T_e	[N]	Takeoff thrust
W_{apu}	[N]	APU weight
W_{eng}	[N]	Engine weight
ρ_{TO}	$[\frac{kg}{m^3}]$	Takeoff density
c_T	$[\frac{lb}{(hr \cdot lbf)}]$	Thrust specific fuel consumption
$f_{fuelres}$	[-]	Fuel reserve fraction
g	$[\frac{m}{s^2}]$	Gravitational acceleration
h	[m]	Cruise altitude
l_r	[-]	Max Runway length
n_{eng}	[-]	number of engines
y_{eng}	[m]	Engine moment arm