Canadian Amateur Rocketry

Standards and Best Practices

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Abstract

This is an Abstract

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List of Abbreviations

Abbreviation	Description	Function of	Units
AOA, α	Angle of Attack		radians
COP	Center of pressure		N/A
COG	Center of gravity	time	N/A
Re	Reynolds Number	$\rho, \mu, \vec{v}, L$	dimensionless
Re_{crit}	Critical Reynolds Number	$\rho, \mu, \vec{v}, L$	dimensionless
I_{zz}	Pitch/Yaw Moment of Inertia	time	m^4
D	Drag Force (combined)		N
W	Weight of the Rocket		N
R	Specific Gas Constant		$Jkg^{-1}K^{-1}$
T	Thrust of the Rocket		N
t_f	Fin thickness	distance	m
L_{cf}	Aerodynamic Chord Length of Fins	distance	m
c	Speed of sound	$\sqrt{\gamma RT}$	
R_a	Surface Finish	$distance$	microns
M	Mach Number	$\vec{v}, c$	dimensionless
D_{pa}, C_{pa}	Parasitic Drag Force, Coefficient		
D_{fb}, C_{fb}	Body Drag Force, Coefficient		
D_{fp}, C_{fp}	Fin Pressure Drag Force, Coefficient		
D_{pr}, C_{pr}	Pressure Drag Force, Coefficient		
D_{in}, C_{in}	Interference Drag Force, Coefficient		
D_{ba}, C_{ba}	Base Drag Force, Coefficient		
D_{sk}, C_{sk}	Skin Friction Drag Force, Coefficient		
D_{aoa}, C_{aoa}	Additional Angle of Attack Drag Force, Coefficient		
C_{MC}	Corrective Moment Coefficient		
C_{FN}	Normal Force Coefficient		
C_{PDM}	Propulsive Damping Moment Coefficient		
C_{ADM}	Aerodynamic Damping Moment Coefficient		
A_{wb}	Area of Wetted Body		m^2
A_{wf}	Area of Wetted Fins		m^2
A_{fr}	Frontal Reference Area		m^2
A_{fp}	Fin Planform Area		m^2
A_{fe}	Exposed Fin Planform Area		m^2
OD,ϕ_{bt}	Outer Diameter		m
L	Total Length of Rocket		m
h_n	Height of the nose cone		m
S_{fc}	Thrust Specific Fuel Consumption		$\frac{g}{s} \cdot \frac{1}{N} = \frac{s}{m}$
$\dot{m}_{fc}$	Mass Flow Rate due to Fuel Consumption		$\frac{g}{s} \cdot \frac{1}{N} = \frac{s}{m}$
T_{avg}	Average Thrust		N
t_{burn}	Burn Time		s
m_{m_t}	Total Motor Mass		g
W_{m_t}	Total Motor Weight		N
F_N	Aerodynamic Normal Force		N
F_A	Aerodynamic Axial Force		N
F_L	Aerodynamic Lift Force		N
S_{lm}	Longitudinal Stability Margin		Calibers
f_B	Fineness Ratio		dimensionless
μ	Dynamic Viscosity		Ns/m^2
ν	Kinematic Viscosity	μ, ρ	m^2/s
λ	Angular Acceleration		rad/s^2
ω	Angular Velocity		rad/s
θ	Angular Position		$radians$

Table 2: List of Abbreviations

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Section 2

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