The Automotive Chassis

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The Automotive Chassis

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SYMBOLS LIST

a	acceleration; generic distance; distance between center of mass and front axle
b	generic distance; distance between center of mass and rear axle
c	viscous damping coefficient; specific heat
d	generic distance, diameter
e	base of natural logarithms
f	rolling coefficient; friction coefficient
f_0	rolling coefficient at zero speed
$\mathbf{f}$	force vector
g	gravitational acceleration
h	wheel deflection
h_G	center of mass height on the ground
k	stiffness
l	wheelbase; length
m	mass
p	pressure
r	radius
s	stopping distance, thickness
t	temperature; time; track
$\mathbf{u}$	displacement vector
v	slipping speed
z	teeth number
A	area
C	cornering stiffness; damping coefficient

C_γ	camber stiffness
C_0	cohesiveness
E	energy; Young modulus
F	force
G	shear modulus
H	thermal convection coefficient
I	area moment of inertia
J	quadratic mass moment
K	rolling resistance coefficient; stiffness; thermal conductivity
$\mathbf{K}$	stiffness matrix
M	moment
M_f	braking moment
M_m	engine moment
M_z	self-aligning moment
P	power; tire vertical stiffness; force
P_d	power at the wheel
P_m	power at the engine
P_n	required power
Q	thermal flux
R	undeformed wheel radius; path radius
R_e	rolling radius
R_l	loaded radius
S	surface
T	temperature, force
V	speed; volume
W	weight
α	sideslip angle; road side inclination; angle
α_t	road transverse inclination angle
γ	camber angle
δ	steering angle
ϵ	toe-in, -out; brake efficiency; deformation
η	efficiency
θ	angle; pitch angle
μ	torque transmission ratio; adherence coefficient
μ_p	max friction coefficient
μ_x	longitudinal friction coefficient
μ_{x_p}	max longitudinal friction coefficient
μ_{x_s}	slip longitudinal friction coefficient
μ_y	transversal friction coefficient
μ_{y_p}	max transversal friction coefficient
μ_{y_s}	slip transversal friction coefficient
ν	speed transmission ratio; kinematic viscosity
ρ	density
σ	normal pressure; slip

τ transversal pressure; transmission ratio
ϕ angle; roll angle, friction angle
ω frequency; circular frequency
Φ diameter
Π tire torsional stiffness
χ torsional stiffness
Ω angular speed