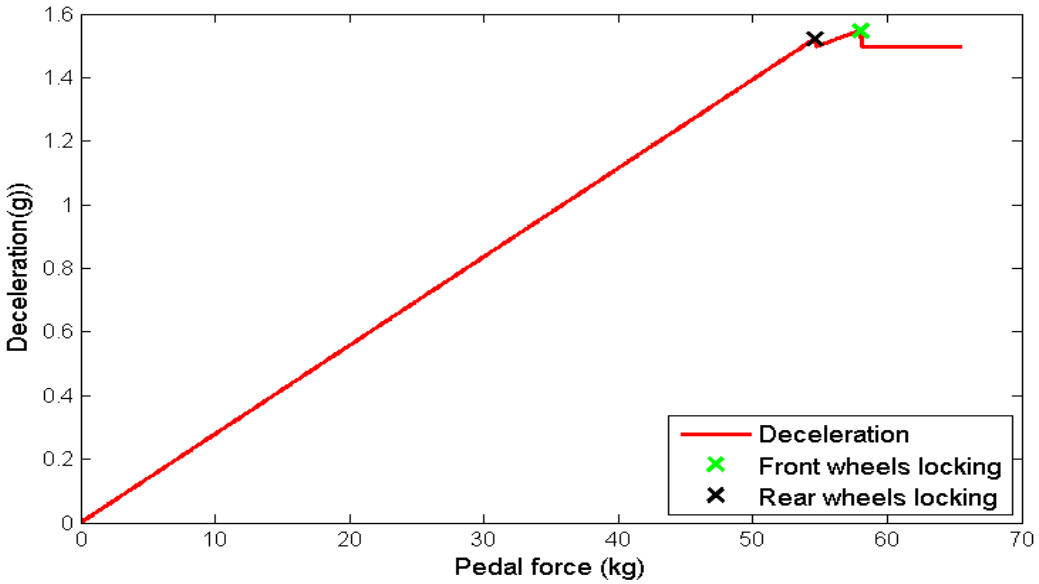
BRAKES MECHANICAL SIMULATION

Parametric model of the vehicle braking depending on brake pedal force:

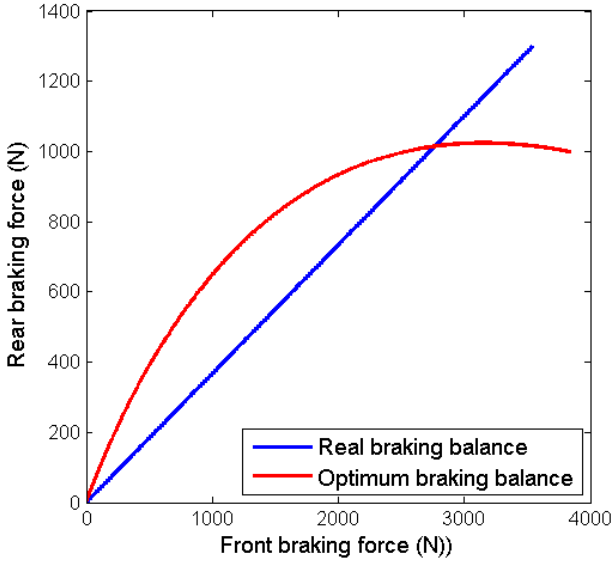
- Vehicle features (mass, center of gravity height, mass distribution)
- Brake system geometry (Discs, calipers, master-cylinders, pedal factor)
- Brake system features (Pressure regulator, brake balance bar, friction factor)
- Tire features (maximum longitudinal factor and factor at wheel locking depending on tire pressure and load)

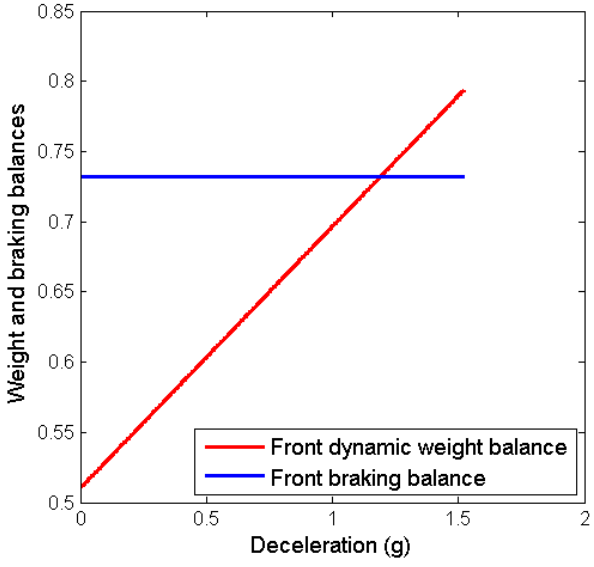


➔ Maximum deceleration simulation (~1.5 g)

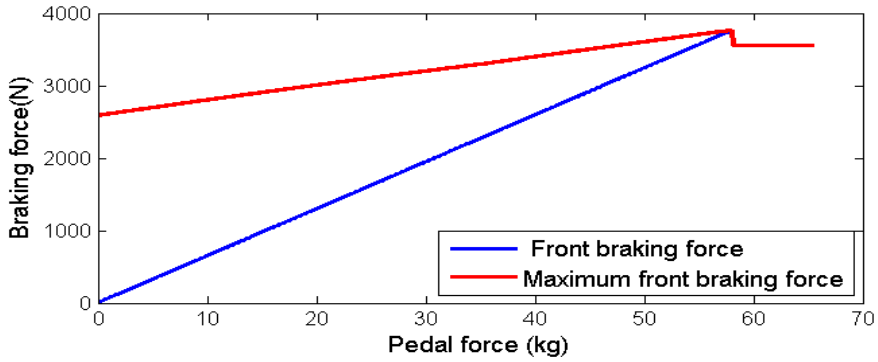
➔ Brake pedal force at wheel locking tuning (~55 kg for rear wheels, ~58 kg for front wheels)

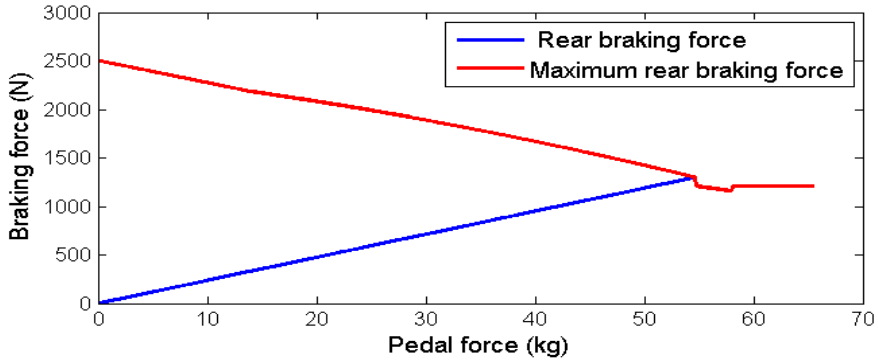
➔ Brake balance bar tuning, Brake hydraulic system dimensioning

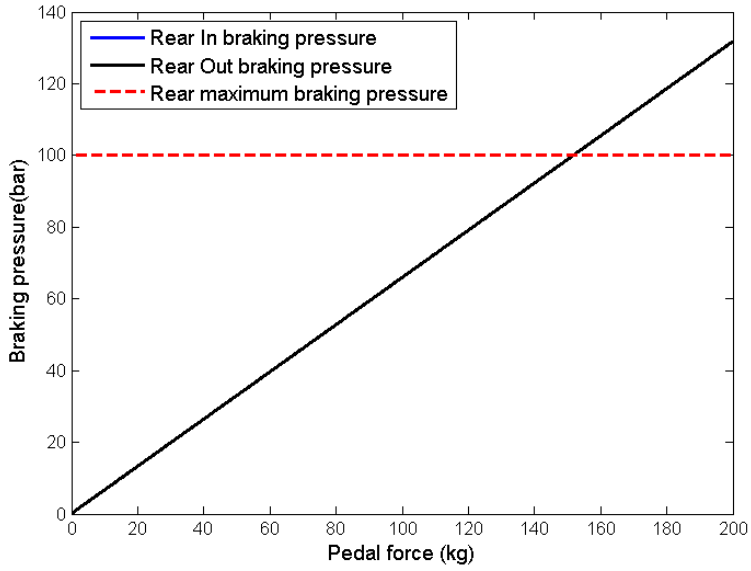




Additional graphs and formulas:







Locked wheels formulas:

- $m.g.D = \mu lock_{fr}.lbs_{fr}.0{,}9 + \mu lock_{re}.lbs_{re}.0{,}9$
- $\mu lock = a.lbs + b$
- $lbs = rW_{dyn}.m.g/0{,}9$
- $rW_{dynfr} = rW_{statfr} + D * \frac{h}{wb}$

First braking system: