

## Chassis

Despite being one of the key components of the car, the chassis has little explicit role in generating forces on the car (all the aero effects are included in the aero model). The only forces explicitly attributable to the chassis are those arising from the undertray (or plank) coming into contact with the track. The Canopy Simulations model includes 3 points along the underside of the car (the point positions are a free user choice). These points acts as linear spring when deflected by contact with the track. This exerts both a vertical force on the chassis and a retarding friction force. The parameters are listed in the table below

Parameter	Definition
hRideFSetup	Front ride height at setup.
hRideRSetup	Rear ride height at setup.
rideHeightAdjustMethod	Ride heigh adjust using Pushrod, Corner Spring Shim or none.
mCar	Mass of the whole car, including hubs, driver, fuel, etc.
ICar	The inertia tensor for the chassis, must be symmetric and +ve.
mHubF	Unsprung mass of a front corner.
IHubF	Inertia tensor for front hub, must be symmetric and +ve.
IWheelF	Front wheel moment of inertia about its axle.
mHubR	Unsprung mass of a rear corner.
IHubR	Inertia tensor for rear hub, must be symmetric and +ve.
IWheelR	Rear wheel moment of inertia about its axle.
mHubF	Unsprung mass of a front corner.
IHubF	Inertia tensor for front hub, must be symmetric and +ve.
xTrackF	Horizontal distance between the front wheel centres.
xTrackR	Horizontal distance between the rear wheel centres.
rWeightBalF	Proportion of total weight born by the front axle.
rRideF	Position at which hRideF is measured (in body coordinates).
rRideR	Position at which hRideR is measured (in body coordinates).
rUndertrayFront	Position of the front plank contact point.
rUndertrayMid	Position of the mid plank contact point.
rUndertrayRear	Position of the rear plank contact point.
kUndertrayFront	Stiffness of the front plank contact point.
kUndertrayMid	Stiffness of the mid plank contact point.
kUndertrayRear	Stiffness of the rear plank contact point.
muChassis	The coefficient of friction between the chassis and the ground.
kVerticalSuspensionComplianceF	Stiffness between front hubs and chassis when suspension is locked.