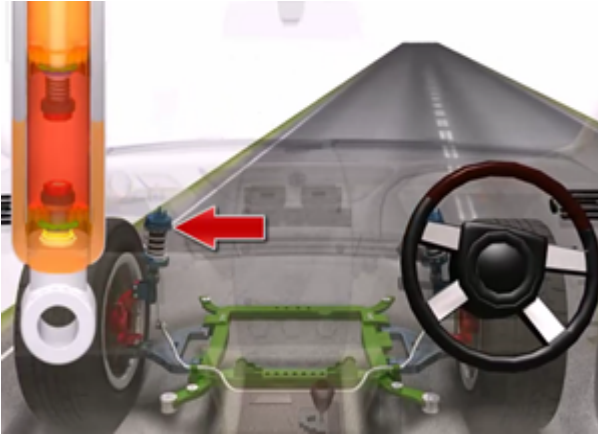
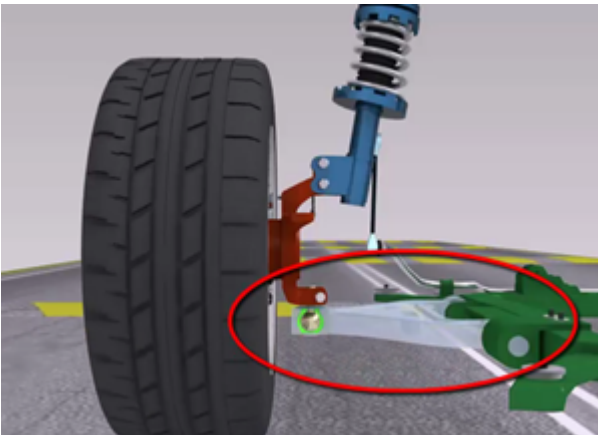


Suspension System



A MacPherson suspension geometry consists of an integrated shock absorber and spring assembly, connecting the steering knuckle on the wheel to the frame of the car.



The lower control arm allows the wheel to move up and down, independent of the subframe.

The suspension connects the frame of the vehicle to the wheels. It contributes to the handling characteristics of the vehicle and the comfort of the passengers. The springs, and struts or shock absorbers, absorb bumps in the road, and keep the body of the vehicle stable under braking and acceleration. Control arms, control arm bushings and ball joints allow the wheels to move up and down. The wheel bearing, hub, and knuckle assembly connect the wheel to the control arm.

Suspension setups can differ greatly between cars, but the most commonly used suspension geometry is the MacPherson strut setup. The strut is an integrated damper, or shock absorber, and spring assembly. The top of the strut is bolted to the frame of the vehicle, with the bottom of the strut attached to the top of the steering knuckle. The lower end of the steering knuckle is attached to a lower control arm, and the control arm pivots up and down as the strut is compressed and expanded.

As manufacturers constantly work to improve ride and handling characteristics, suspension systems become more complex. Many vehicles now use multiple suspension links instead of a single lower control arm. In contrast to the MacPherson strut, this four-link suspension has two upper control arms and two lower control arms. The control arms are attached to the steering knuckle by ball joints that allow the steering knuckle to pivot. The top of the spring and damper assembly is connected to the body of the vehicle and the bottom is usually connected to the lower control arm. This style of suspension assembly helps to maintain the correct angle between the tire and the road even when the

Suspension System

spring and damper are compressed or extended.