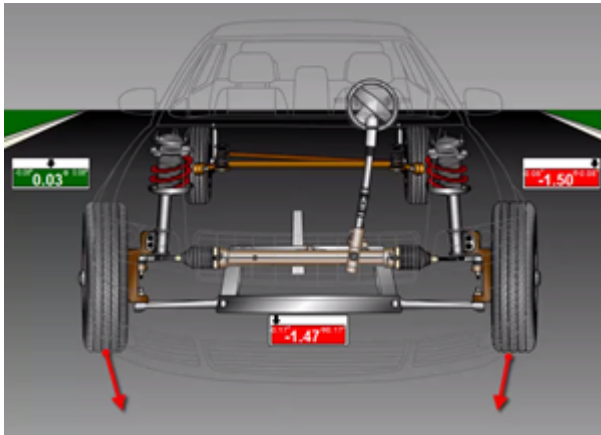
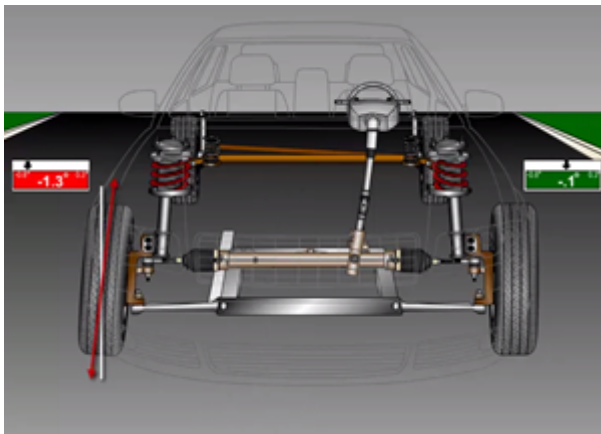


Wheel Alignment



An example of toe-in, which can cause extreme tire wear.



An example of negative camber, which can cause wear and feathering of tire tread.

Components in both the steering and suspension systems determine the alignment of a vehicle's wheels. Many of these parts, like tie rods and control arms are adjustable to compensate for changes in the suspension and steering systems over time.

The main alignment angles are toe, camber, and caster. The "Toe" alignment angle determines where the tires are pointed in relation to each other. It is usually adjusted by the tie rods. When viewing the vehicle from the front, toe-out occurs when the front of the wheels are pointing away from each other. On the other hand, toe in occurs when the wheels are pointed in, towards each other. Vehicles with excessive toe in or toe out can experience rapid tire wear and may also experience feathering of the tire tread. The camber angle is the angle that the tire makes relative to vertical. Negative camber suggests that the top of the tire is tilted in towards the vehicle and the bottom of the tire is tilted outwards.

Positive Camber is exactly the opposite where the top is tilted out and the bottom tilted in. Excessive camber in either direction can cause tire wear on just one edge of the tire and can create a pulling force that will cause the vehicle to drift as it moves down the road. Camber angles are especially affected by the suspension components. Worn suspension springs and shock absorbers allow the vehicle to sit lower, causing negative camber.

The caster angle is the angle between vertical and the steering pivot axis. Caster can be adjusted by moving the top of the struts forward or rearward. Caster angles that are out of adjustment usually won't cause tires to wear, but may cause the vehicle to pull if caster angles differ greatly between the two front wheels. Caster can also affect

Wheel Alignment

the steering effort. More positive caster angles can increase steering effort, but will create more straight line stability. Caster angles close to 0 will decrease the steering effort, but may cause the vehicle to wander when traveling along the road.