



Four Wheel Alignment

What Is an Alignment?

Basically, alignment is making sure the wheels are operating parallel with one another, and that the tires meet the road at the correct angle. Wheel alignment is simply adjusting the relationship between the suspension and steering components, the wheels, and the frame of the vehicle. Car manufacturers recommend certain measurement specifications for each of these angles on every one of their vehicles. When the angles are all within specification, the vehicle is properly aligned achieving minimum rolling friction, longer tire life and maximum steering stability.

Everyday road shock and general wear and tear can knock some of these angles out of spec. When that happens, control of the vehicle may be threatened, and the tires may begin to wear unevenly and rapidly. The car needs to be 'realigned,' to have all the proper angles restored.

Warning signs suggesting the need for alignment:

- ❑ **Unusual tire wear:** If one or more of your tires show excessive wear on one side, or wear in a cupped, scalloped or uneven pattern, an alignment could be needed.
- ❑ **Unusual steering feel.** If you feel a change in the steering, or if the wheel does not return to the center position when released, or if the steering wheel is cocked to one side when the front wheels are pointing straight ahead, an alignment is almost certainly needed
- ❑ While driving, if the car wants to pull to one side, tends to **wander or weave**, or is subject to front end "shimmy", you should have the alignment checked immediately.
- ❑ If your car wants to **move "crab-like"** on the road, with the rear end off set to one side while moving straight ahead, you're a top candidate for an alignment. (Usually, only the drivers behind you can see this condition.)

A wheel alignment is recommended for today's cars and light trucks when the following repairs are performed.

- ❑ When you buy new tires. "If your old tires wore unevenly, bad alignment could be the reason they had to be replaced, and the same thing could happen quickly to your brand-new tires!"
- ❑ When you replace a rack & pinion steering unit or tie rods, ball joints or control arms, alignment is necessary.
- ❑ We also recommend your alignment be checked every 50,000 kilometers, whether warning signs appear or not.
- ❑ Four-wheel alignment is the standard service today, and it is essential on vehicles with front wheel drive (FWD) and independent rear suspension. The rear wheels should follow the fronts in a parallel path. If the rear wheels are pointed in a slightly different direction, they cause a condition called "rear axle steer," which can affect tire wear and the vehicle's stability.

What Happens During An Alignment?



Before an alignment, the technician will begin with a thorough inspection of the entire under car, including steering linkage (pitman arm, tie rod ends, idler arm), suspension parts (ball joints, control arm bushings, struts & springs), wheels and tires, and the vehicle's frame and ride height. The technician looks for parts that are seized, loose, bent or worn. Once this inspection is complete, alignment sensors will be attached to the vehicle wheels. The technician will then check and adjust camber, caster and finally toe, on both front and rear wheels of the vehicle.

What they are:

- Camber** is simply the inward or outward tilt of the top of the wheel compared to the side of the vehicle.
- Castor** is the tilt of the steering axis. It may be tilted forward or backward from the front of the vehicle.
- Toe** refers to the directions in which two wheels point relative to each other. "Toe-in" means the wheels point toward each other in a "pigeon-toed" stance; toe-out means the wheels point away from each other.

These three basic wheel angles determine whether a vehicle is properly aligned and goes where it is pointed. Every angle applies to every wheel, however not all angles are readily adjustable on all vehicles (i.e.: rear wheel drive vehicles have solid housings that can be damaged and would have to be replaced if the angles are not proper).

"We are entering an evolution in suspension/steering design, after many years without significant changes. The majority of cars sold in this country today are front wheel drive. Most of these cars are dependent on proper alignment on all four wheels to operate safely. Improved vehicle handling performance alone is well worth the cost of a four-wheel alignment. Other benefits are better fuel mileage and longer tire life.

We at Buehler Automotive have the latest Sun Aligner 3500 computerized alignment unit. We have the capability to handle everything from passenger vehicles to motor homes and medium duty trucks.