



PEDDERS

WHEEL ALIGNMENT





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If your steering wheel vibrates at certain speeds, or the steering feels heavier than before; or if your tyres seem to be wearing quickly or unevenly, there's little doubt that your car requires a wheel alignment or wheel balance.

Put simply, a poor wheel alignment means that your tyres are not running smoothly on the road surface or that your four wheels are trying to head in slightly different directions.

Wheel balance, on the other hand, is the balance of the rotating mass of a tyre and wheel – i.e. the wheel is not balanced as it is turning. Poor wheel balance also prevents the tyres from running smoothly on the road surface, but the effects on the behaviour of your car and the wear on tyres are markedly different.

Deterioration of wheel alignment and wheel balance may occur gradually and imperceptibly, or instantly as a result of an impact or component failure. The effect of this deterioration may range from a barely noticeable shimmy in the steering, to a violent vibration of the car and severe pulling towards one side of the road.

Whatever the signs, poor wheel alignment or wheel balance detracts from the overall performance and ride quality of your car, reduces fuel economy, places greater stress on the other components and can greatly reduce the life of your tyres. In the worst case, a poor wheel alignment may reduce the life of new tyres from 80,000km down to 8,000km and increase fuel consumption by up to 30%.

THE SIGNS OF POOR WHEEL BALANCE

- Steering wheel vibration at certain speeds
- Vehicle vibrates at certain speeds
- Tyre wear – small rounded sections worn on outer edges of tyres, called scalloping.
- Poor ride quality

To achieve correct wheel balancing, each wheel is balanced individually while in motion on a special wheel balancing machine. Lead weights are affixed to precise positions on the edges of the wheel rim to cause the wheel to rotate in perfect balance.

THE SIGNS OF POOR WHEEL ALIGNMENT

- The vehicle pulls to one side of the road
- Tyres wear evenly, but quickly
- Tyres wear on the edges – either inner or outer edges, not both
- Tyre develops a feathered or saw-tooth pattern where one edge of each tread element is worn smooth while the outer edge is sharp and ragged
- Lack of steering feel and responsiveness
- Excessively heavy steering
- Poor handling such as excessive oversteer or understeer
- A change in the position of the steering wheel when driving in a straight line

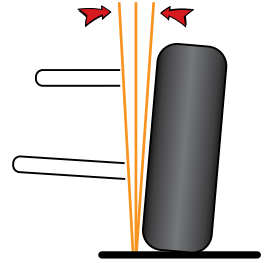
THE ADJUSTABLE ANGLES

While most people would recognise the common alignment angles of toe, caster and camber, there are many more that are adjusted in a comprehensive wheel alignment.

Pedders sets all adjustable alignment settings, not just toe – and where there is no manufacturer's provision for adjustment, we have the technology to provide adjustment for most cars should this be required.

CAMBER

Camber is the tilt of the wheel from the vertical. Too much negative or positive camber causes the edges of the tyre to wear rapidly. A car will pull towards the side of the car with the most positive camber.



CASTER

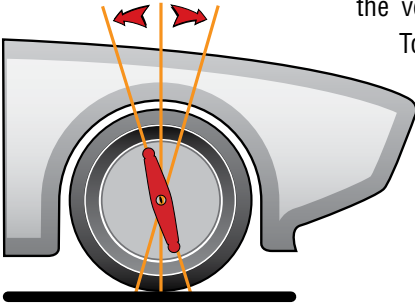
Caster is the angle between the steering axis and the vertical, viewed from the side of the car.

Too much caster causes heavy steering.

Too little caster makes the car 'wander'.

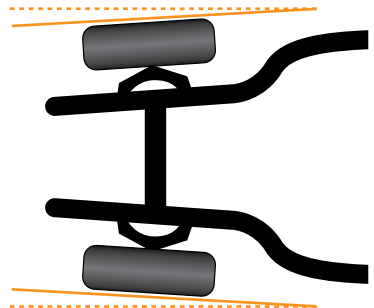
A car will pull towards the side of the car with the least positive caster.

Unequal casters can also cause braking problems on some vehicles.



TOE

Toe is the alignment of the wheels on the same axle in relation to each other. If the distance between the front edges of the two front tyres is further than the distance between the rear of the front tyres, the car is said to have toe-out. If the front distance is narrower, the car is said to have toe-in. Toe-in and toe-out can be compared to pigeon-toed or splayed feet. To avoid scuffing tyres, all four wheels must run parallel with one another when the car is in motion. To achieve this, a small amount of toe is needed.



COMMON CAUSES OF MISALIGNMENT

- Wear and tear of suspension components
- Impact causing immediate change in alignment
- Change in suspension height caused by:
 1. Sagged springs
 2. Load
 3. Number of passengers – car should be aligned to suit the load of the number of passengers usually carried
- Car body flex
- Driving conditions:
 1. Cars should be aligned for the most common driving condition, e.g. bitumen, gravel or dirt etc.
 2. Alignment should consider city driving (constant turning and braking) or country (long straights, some gravel or dirt driving)

TWO-WHEEL VERSUS FOUR-WHEEL ALIGNMENT

There are two types of wheel alignment: two-wheel and four-wheel alignment.

Two-wheel alignment involves aligning the front wheels only and was the predominant alignment method used before the introduction of today's more sophisticated steering and suspension systems. Two-wheel alignment is satisfactory for older model vehicles and with solid rear axle.

Pedders recommends that all 'recent' model vehicles, i.e. those without a solid rear axle, require a four-wheel alignment. This involves aligning all four wheels together. Particularly for the front-wheel drive vehicles and those with independent rear suspension, failure to align all four wheels can compromise safety and handling qualities.

WHY CHOOSE PEDDERS FOR WHEEL ALIGNMENT

Pedders is the undisputed leader in alignment technology backed by over 120 outlets nationwide offering a comprehensive range of alignment products. Since 1950 Pedders has developed steering and suspension solutions to suit all conditions.

Since 1950 our specialist experience and regular feedback from our stores has enabled us to adjust the alignment of our customers vehicles to suit their driving styles and the most common driving conditions – not merely the manufacturer's specified angles.

Pedders recommends that you have your car's wheel alignment and balance checked every 6 months or 10,000km, and after any major jolt or impact. Any noticeable change to your car's behaviour may result from alignment deterioration. If in doubt, book your car in for a Pedders alignment inspection. With any wheel alignment, Pedders technicians conduct, free of charge, a comprehensive 28 point safety inspection of all steering and suspension componentry.

Pedders stores are equipped with the latest diagnostic equipment and Pedders technicians have the expert training to ensure optimum wheel alignment and balance performance, comfort, improved fuel economy and extended tyre and suspension component life.



Our comprehensive range of Wheel Alignment products can assist with a variety of wheel alignment adjustments.



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