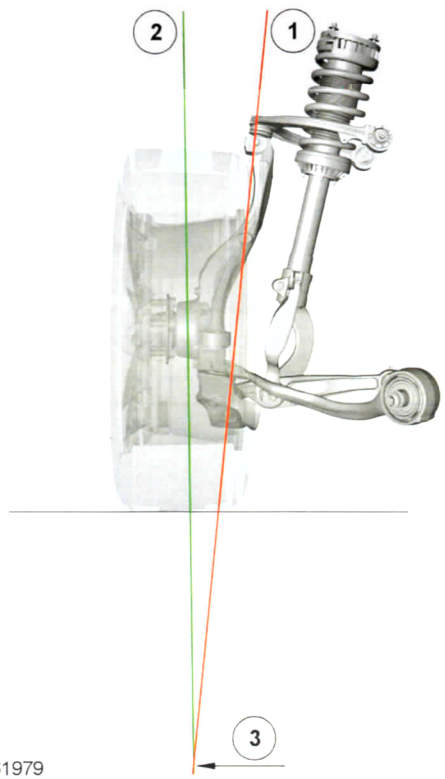
Scrub Radius



E161979

Item	Description	Item	Description
1	KPI	2	Centre line of wheel
3	Intersection point		

The term "Scrub Radius" refers to the fact that with either a positive or negative value, the Tire does not turn on its centre line (it scrubs the road when steered). Due to the increased friction, more effort is needed to turn the wheel.

Whether positive or negative the Scrub Radius will produce a turning motion that attempts to turn the wheel away from the central position when it is in motion.

The graphic E161979 illustrates a positive Scrub Radius.

Most modern vehicles have a negative Scrub radius, the advantage being that the geometry naturally compensates for uneven forces applied to the front wheels whilst moving.

QUESTION 11

Give three examples when the force applied to each front wheel could differ

With a negative Scrub Radius the steering will tend to veer away from the side that has the greatest resistance or force; this helps the vehicle to maintain a straight line of motion should an equal force be experienced.

NOTE: The Scrub Radius will be altered by adjusting the Camber angle or fitting wheels with a different offset.

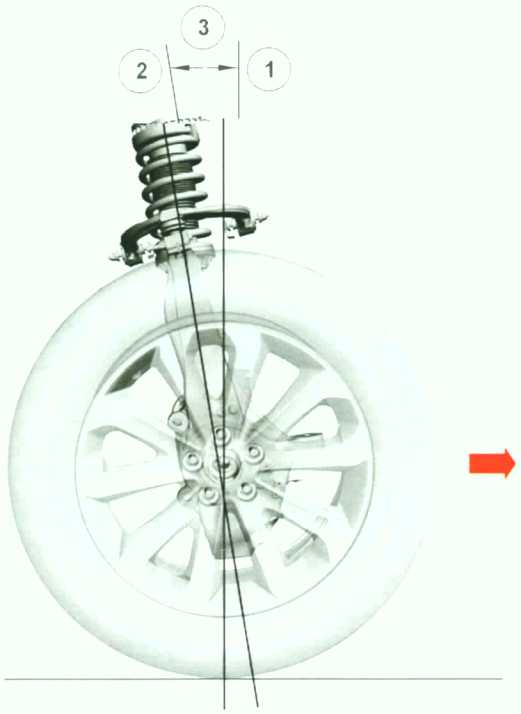
Symptoms of Incorrect Scrub Radius

1: If the difference between the left and right Kingpin Inclination is greater than 1°, the Scrub Radius would also differ from side to side., making the vehicle pull to the side with the greatest resistance (greatest Scrub Radius).

2: A Scrub Radius that should be Negative, but has been made Positive by fitting wheels with a different offset, may aggressively shake the steering wheel when the wheels are subjected to uneven forces.

NOTE: This condition (2) may only become apparent when one or more of the conditions listed above are present.

Caster



E161980

Item	Description	Item	Description
1	Vertical reference	2	Steering axis
3	Caster Angle		

The purpose of Caster is to provide a degree of self-centering for the steering.

The angle of the intersecting line and the vertical is the Caster angle. In a forward direction, the wheels will "Caster" behind the axis point of the steering and improve the directional stability of the vehicle.