

# Nolathane® Update.

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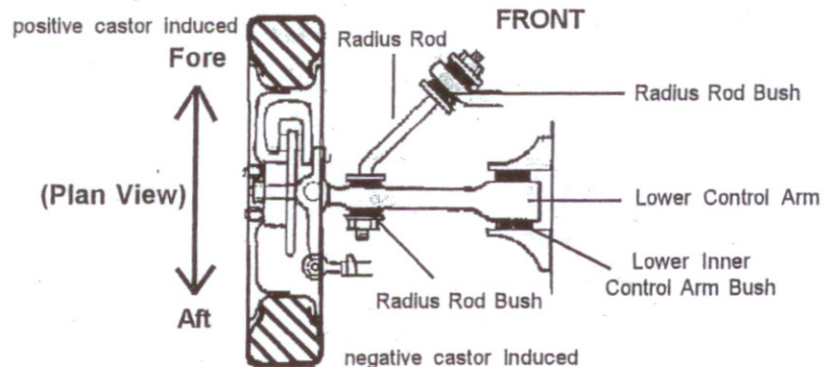
## Radius rod/strut bushes

Vehicles with single blade, lower control arms which are held in position by radius rods, suffer from a very common problem - **the inability to control fore and aft movement of the suspension under minor braking, turning, bump and dynamic suspension loads.** In attempting to give their vehicles increased ride comfort, many manufacturers have redesigned the radius rods to incorporate bushes at both ends (chassis and lower control arm locations).

### (1) Braking and Bump

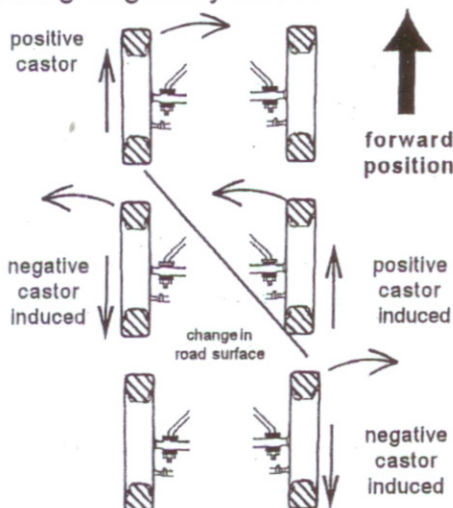
Under brakes or bump, after the wheels have hit a road surface join or pothole, the wheels move back and then recover forward as the brakes are released, the vehicle stops or continues ahead. This rearward movement of the wheels induces negative castor increases in the suspension geometry. This increased negative castor makes the vehicle vague under brakes or bump to the point where it tends to wander and give the driver a sensation of reduced control. ABS brakes and taller/wider tyres further highlight bush compliance.

*The wheel moves back and then recovers under braking, turning and suspension bump loads*



### (2) Changes in Road Surface

When driving along a straight stretch of road, drivers sometimes encounter a change of road surface running diagonally across the road. This can result in the following problem:



- (1) Right wheel impacts joint and moves back. As negative castor is induced wheel pulls to right. Left wheel steers straight ahead.
- (2) Right wheel moves forward into positive castor-wheel pulls to left. Left wheel impacts joint and moves back. As negative castor is induced wheel pulls to left.
- (3) Left wheel moves forward into positive castor-wheel pulls to right. Right wheel steers straight ahead.
- (4) The reverse will happen if the change in road surface runs in the other direction across the road.

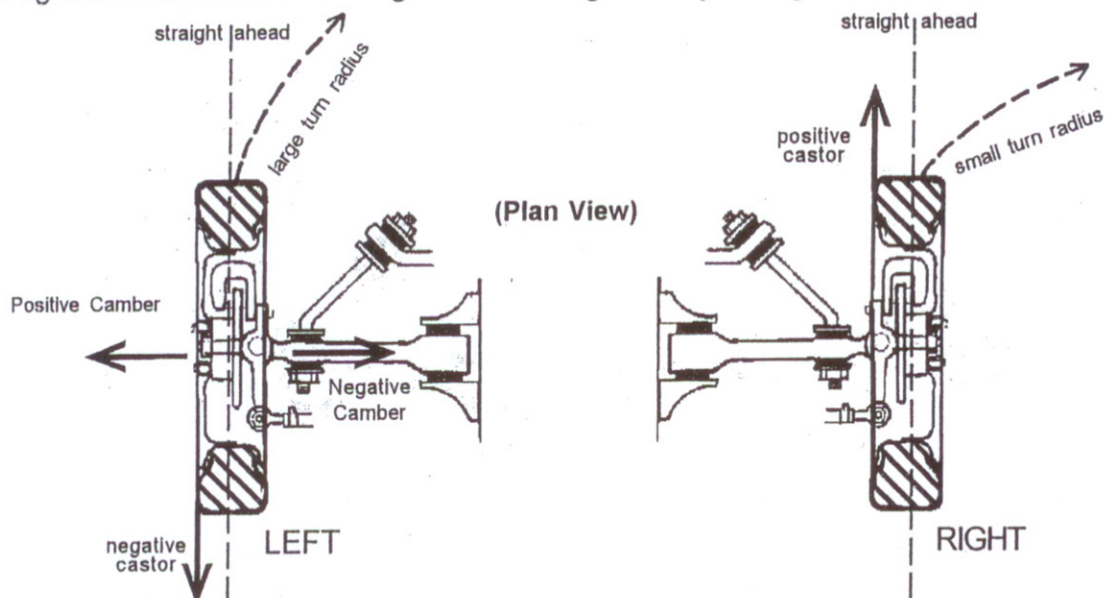
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## Radius rod/strut bushes (Cont.)

As the wheels initially hit the change in road surface the car pulls slightly to the right, then it pulls firmly left as both wheels cross and finally slightly right again as the LHF wheel recovers. The driver has never moved the steering wheel and yet the car has made three changes of direction. Under straight ahead conditions no loss of control should result but severely corrugated road or hard cornering will greatly compound this problem.

### **Tight Turns**

On tight turns the vehicle undergoes different geometry changes on each side of the suspension.



On right lock the left wheel turns through a larger radius than the right wheel. At the same time the left wheel takes on negative castor whilst the right wheel takes on positive castor. As the left wheel turns, the negative castor induces positive camber, pushing the top of the wheel out and causing the tyre to tuck under where it contacts the road surface. The opposite happens on left turns, resulting in increased tyre shoulder wear. These geometry changes are aggravated by roundabouts and U turns. A problem once normally associated with taxis and delivery vehicles because of their constant U turns, tyre shoulder wear is a common concern in the vehicle repair industry on all passenger vehicles with compliant bushes at both ends of the radius rods.

**Fitment of Nolathane Radius Rod Bushes will address the above problems, due to the difference in the initial static firmness of the Nolathane Bushes the suspension will be more resistant to the changes in geometry & the dynamic compression rates will also provide greater control in the above scenarios than rubber bushes**

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