Nolathane®

Product Update

Update No: 0503

BRAKES DON'T STOP THE CAR!

That's right! The brakes only retard the wheel rotation, so what stops the car?"

Since it's launch in 1978 the Commodore has grown in size and weight. Engine power has increased significantly; it was only back at VS that 185kw was the output of a HSV Clubsport and today a standard VZ 6cyl Commodore has 175kw as standard! The wheel sizes have also grown in diameter and width with much improved tyre technology, combined with better braking packages that feature ABS as standard.

We now have bigger cars with more power, running bigger wheel and tyre packages with better brakes & handling. Our appetite for larger & more powerful vehicles means that these trends are common throughout the industry. Commodore is just an example. So where is all this energy going? We need to look more carefully at the suspension system!

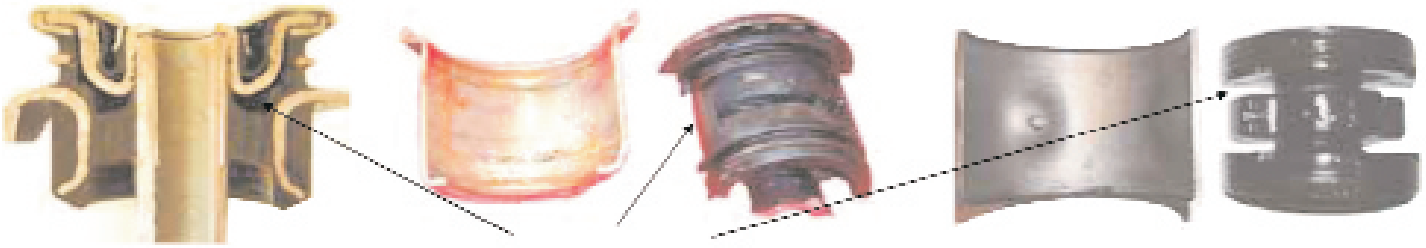
Let's look at VT-VZ Commodore for example. When you apply the brakes the wheel rotation is retarded and most of the vehicle weight transfers to the front wheels. The majority of the braking load is transferred via the lower control arm and the radius / strut rod to the chassis. Most of this load is taken by the large hydraulic bushes that mount the strut rods to the cross member below the radiator. So whilst the brakes stop the wheels, it is these control arms, radius rods and their bushes that actually stop the vehicle.

It is important to recognise that these components including their bushes are a key part of the vehicle braking package and must be part of any brake inspection. They are the link between the wheels / brakes and the chassis.

Commodore front strut rod bush

Falcon AU-BA front lower control arm bush

Subaru & Magna have similar hydraulic lower control arm bushes



Hydraulic fluid reservoir

Hydraulic or fluid filled bushes are no longer found in only prestige German marques. Commodore, Falcon, Magna & Subaru are all running hydraulic bushes in their front end. In an effort to absorb much of this energy (mentioned above), without compromising vehicle handling or NVH (Noise, Vibration & Harshness), original rubber bush technology is moving to these larger hydraulic bushes. Unfortunately our road conditions are such that we do not obtain the same life out of the hydraulic bushes as obtained in Europe. This is due to these road conditions combined with aggressive driving, regular activation of ABS, clipping a round-a-bout/kerb or brake pulsation problems. We then find the hydraulic fluid has pumped out of these bushes.

Commodore front strut rod bush

Falcon AU-BA front lower control arm bush

Subaru lower control arm bush

It is common to overlook the suspension bushes when diagnosing brake pulsation or vibration. Remember much of this braking load is transferred to these bushes so even after the pads &/or rotors have been replaced many vehicles continue to suffer from pulsation or vibration. This is because the brake pulsation problems may have caused the bushes to fail in the first place so you have only fixed part of the problem. It is essential that you inspect these bushes by conducting the "roll by" test. Simply have someone drive the vehicle at very low speed (3kph) whilst you safely observe the front LH wheel during brake application to a standstill and then release the brakes (repeat for RHS), whilst checking for excessive movement. It is normal to observe some minor movement of around 10mm, but excessive movement of 30mm is common and can indicate failed bushes. Other items such as ball joints etc should also be inspected but in most cases the cause is these failed bushes. Unlike most hydraulic engine mounts which tend to leave a tell-tale oil stain when leaking, hydraulic bushes tend to appear fine as they are more exposed to the weather & the fluid being washed / sprayed away.

The Nolathane team are continuously expanding the range of bushes to replace these failed hydraulic bushes. The innovative designs ensure that there is no noticeable increase in NVH and in all cases steering response will also be improved. The Nolathane bushes will NOT tend to pump or deform as much under braking and provide a more confident brake pedal feel and less squirming of the vehicle.

So make sure you are not letting the profitable replacement of these bushes roll out your door! Show your customer the problem and fix it for them!

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Watch front wheel movement during low speed braking

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