

**COMPANY AT A GLANCE**

**Redranger**

ADDRESS: 2/4 Warringah Close  
Somersby NSW 2250

PHONE: **1300 882 355**

FAX: 02 4340 2466

EMAIL: sales@redranger.com.au

WEB SITE: www.nolathane.com.au

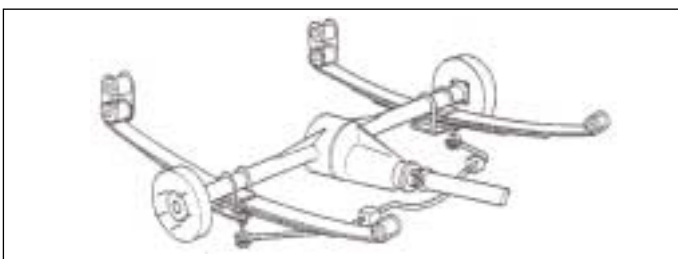
SALES CONTACT: Steve Broad

BRAND: Nolathane

DISTRIBUTION: Australia, New Zealand

**Advantages of Nolathane Bushes on 4WD Vehicles**

Virtually all 4WD vehicles up to late '80s and some current vehicles are supported by leaf springs, which rely on the shackle bushes for attachment to the body and ease of suspension movement.

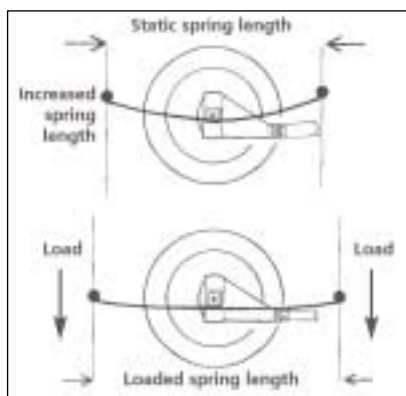


When a rubber spring eye or shackle bush is installed it is bigger than the spring eye and has to be lubricated and forced in. The shackle pin is tight in the centre hole of the bush and has to be lubricated to fit. After assembly the shackle sideplates are installed and the bushes are put under more compression as the shackle pins and nuts are torqued. The rubber bush under compression bonds to the interior of the spring eye and shackle pin eye and increases in hardness as a result.

**Under Load Conditions**

With the vehicle static the spring has a set camber and overall eye-to-eye distance. As load is applied in the centre of the spring (tyre climbing over rough terrain) the spring changes camber and increases its eye-to-eye length. Under rebound (tyre dropping into hole) the reverse happens and the eye length decreases.

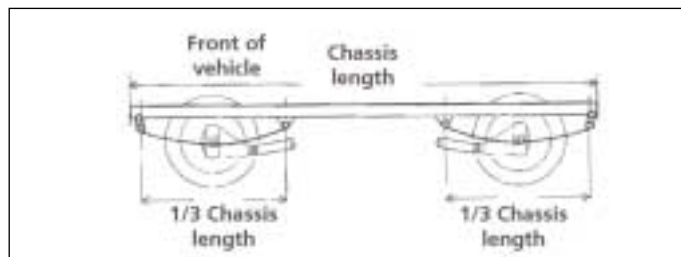
Because rubber is compression bonded to the eye and shackle pin it resists these changes in the length of the spring, thus reducing the vehicles ability to undergo radical bump and rebound loads.



Installation of Nolathane spring eye and shackle bushes permits these spring length changes under bump and rebound loads. Being a flexible bearing, the Nolathane bushes permit the lubricated shackle pins to free-pivot under changes in spring length. The enhancement in 4WD ride and off road manoeuvrability is evident immediately after the installation of Nolathane bushes.

**Pitching**

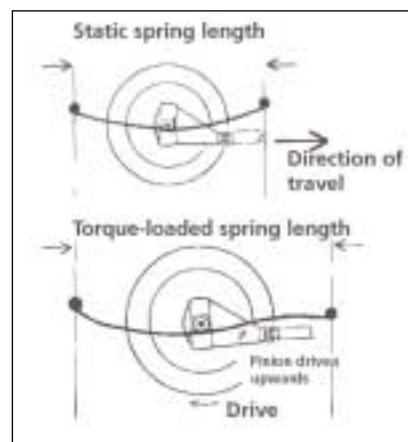
Short wheelbase 4WD vehicles (Suzuki Sierra, Daihatsu rocky, MQ Patrol) can suffer from a pitchy (rocking horse) ride, especially under tarmac highway conditions. These vehicles generally have two thirds of their chassis



length covered by leaf springs. With rubber bushes installed and resisting changes in spring length, the vehicle's chassis is "energised" by the torque set up in the shackles. This results in a pitchy ride. Installation of Nolathane bushes with free-pivoting technology reduces the pitching motion noticeably.

**Axle Tramp**

Axle tramp is common in many 4WD vehicles, especially on loose or sandy surfaces. Statically, the spring has a preset camber and overall length. As the vehicle attempts to drive away, the tyre driving on the road pushes the differential pinion upwards, thus loading the front half of the spring. The camber of the front half of the spring inverts and increases the eye-to-eye spring length. Rubber bushes resist this change of camber and length causing the spring to yaw, resulting in axle 'tramp'.



Installation of Nolathane bushes with free pivoting technology cures axle tramp in the majority of 4WD vehicles.