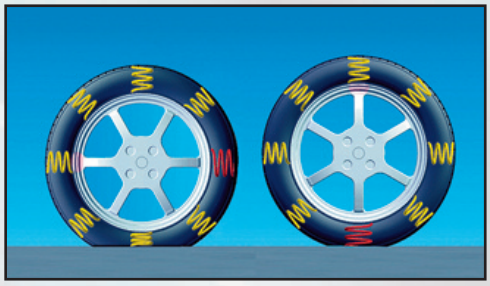
RFV and LFM - the new language in ultimate tyre servicing
Road Force Balancing with GSP9700

What is Radial Force Variation (RFV)?



All tyres have some differences in uniformity in the stiffness of the sidewall and/or footprint due to the variables in the manufacturing process. So when a tyre rolls on the road, it flexes (as if made of springs) and when the tyre rolls onto a stiffer section of the tyre, a lump or bump gives a vibration input. It is this irregularity that causes the vibration. It cannot be rectified through balancing.

Tyre uniformity is measured in assembly plants and manufacturing facilities, and wheel tyre assemblies have been matched to ensure the smoothest of ride for that new vehicle feel.

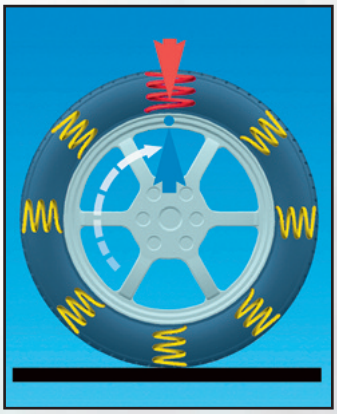
As in this VW Transporter wheel on one of the new Pro-Align service vans.

Nothing is available to the aftermarket to diagnose and solve force variation vibration problems until the arrivalthe Hunter Road Force Balancer.

What is Lateral Force?

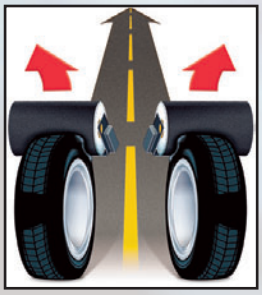
This is the amount of left or right pull force created as the tyre rolls along the road, causing the vehicle to drift from the straight-ahead. This is primarily created by the conicity (the amount of flexibility in the tyre on its inner and outer tyre sidewalls, creating a cone shape) and cannot be detected during balancing or wheel alignment service.

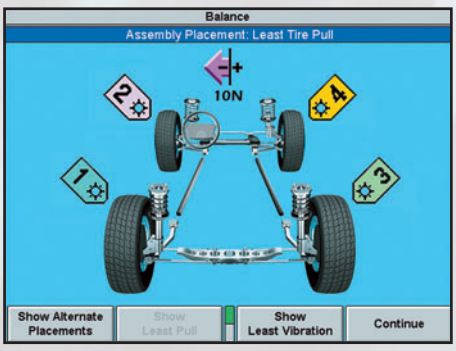
How does the GSP9700 measure RFV and Lateral Force and resolve the problem?



Radial Force Variation (RFV) - The GSP9700 'road tests' the tyre/wheel assembly by using a large roller which applies up to 700Kg of load or 'road force' It then automatically diagnoses the uniformity of the assembly (by identifying the stiff/high spot). Given this information alone it would not be able to able to solve the problem without knowing how the tyre and rim individually contribute to the measured total value. Then by conducting a radial rim runout the GSP9700 calculates the contributing factors of the tyre & the rim to the vibration problem. Through a series of step-by-step instruction with easy to follow colour graphics, the technician can then position the stiff spot of the tyre with the low spot on the rim, through 'MatchMounting' which ultimately cancels out /minimises the effects of the RFV. This provides the smoothest ride possible. Once this is completed the wheel is balanced in the normal way.

Lateral Force Measurement (LFM) - The StraightTrak TM option of the GSP9700, identifies lateral forces. Again the large roller is utilised to measure the amount and direction of pull of each tyre. Tyre assemblies are tagged for identification purposes. When the measurement of either a pair or all four wheels is complete a recommended best position for each wheel is suggested. The aim is not to reject any one tyre but to balance tyres across an axle (particularly the front axle) relative to one another, on the vehicle to obtain the best straight-ahead steering stability.





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