

Technical Bulletin No.1

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"Coloured Dot" Markings on the Sidewall of Car Tyres

Car Tyres may have several different coloured dots on the sidewall. This has led to some confusion on where to position them when fitting a new tyre to the rim.

There is no guarantee that the coloured dots will be visible on all tyres as they may only be applied on OE tyres to meet car manufacturer's requirements.

Although there is a consistent red coloured dot identifying the tyres "*radial force variation first harmonic maximum*", there is no standard colour for the "*light static balance point*". As shown in the photo below Continental Tyres indicates this with a white dot, but it may be yellow or blue and in some cases as a circle rather than a dot.



These markings are used to enhance the uniformity of the wheel assembly to improve the vehicles ride quality however they may only be relevant during the OE fitting process.

As a best practice policy it is recommended to locate the static balance point dot of the tyre in line with the valve of the wheel as this may provide the best initial balance. This matches the light point of the tyre with the possible heavy area of the wheel. However, with the advent of styled, steel wheels and aluminum alloy wheels, the valve position evolved into an aesthetic issue rather than being a uniformity indicator, and for this reason it is no longer necessarily a guarantee of initially optimising the wheel assembly.

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As an important reference the red dot force variation mark (shown below) is where the centrifugal force is highest in relation to the rotating tyre trying to pull away from the wheel. This can also be interpreted in another way related to run out, for instance if the tyre was not perfectly round then the red dot would be the high point or place where radial runout forces are greatest.



Some wheels (especially steel) have a low point dimple mark, if this is clearly shown then it is recommended to fit the tyre with the red dot aligned to this mark. This is the most accurate method of harmonising the tyre to the wheel.

It is important to note that aligning these dots to either the valve or low point dimple mark is not a substitute for accurately balancing the tyre on a calibrated balance machine.

If, after balancing the wheel assembly there seems to be an excessive amount of balance weight required (above 40 grams per side) then breakdown the beads from the rim, rotate the tyre 180 degrees, then re-inflate to normal pressure. This will reduce the amount of weights needed to bring the wheel into uniformity and reduce the likelihood of potential unsatisfactory vehicle vibration.