

TYRE MANAGEMENT

White Paper – February 2017

(For information purposes only)

Tyre management is a highly complex discipline and when done correctly and diligently can ensure driver safety, maximise fuel consumption and improve overall vehicle running costs.

Fleet operators should have documented driver policies and procedures in place to monitor the impact of driver behaviour on tyres and take corrective action if required. Bad driving habits, such as excessive braking, speeding and poor tyre care results in an increase in operating costs. In fact, research has shown that poor driver behaviour can contribute as much as 30% to increased fleet costs.

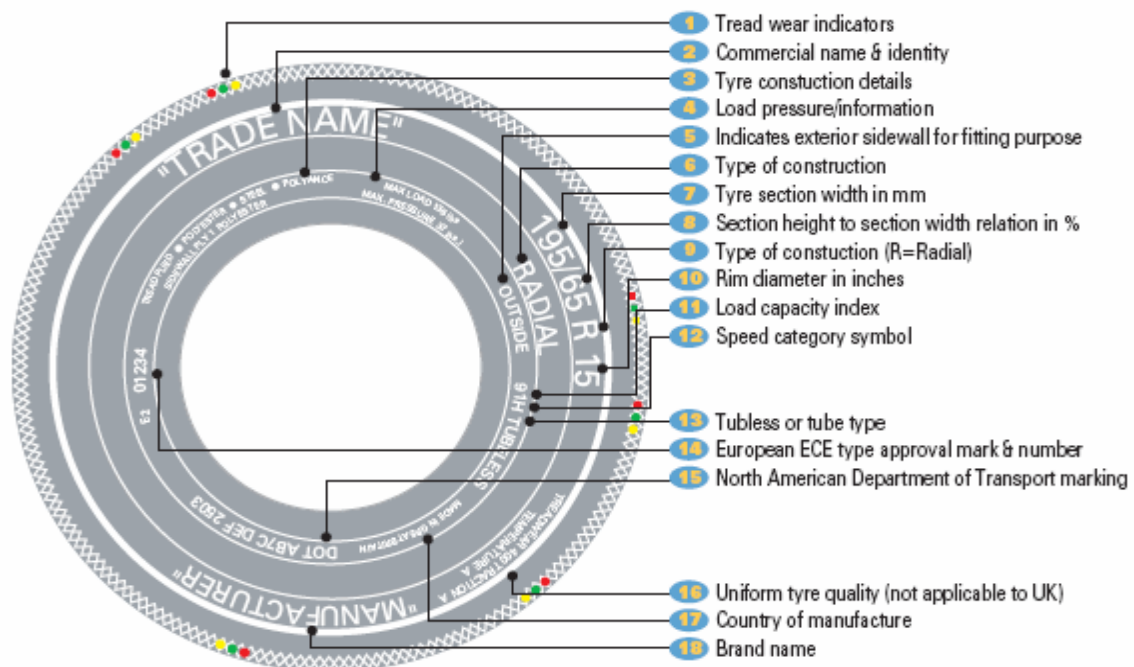
The function of a tyre is to:

- Carry the vehicle weight / load capacity
- Provide a cushioning ability against road shocks
- Transfer the traction and braking abilities to the road surface
- Ensures good road holding ability
- Give adequate mileage and safety

Tyre Size Characteristics:

Each tyre has a vast amount of information printed on the sidewalls to help identify the size of tyre and its characteristics. Below is an international standard chart to assist you to understand these markings.





Referring to the diagram above:

195/65 R 15

- a) 195 – the first section is the tyre width measured in millimetres from sidewall to sidewall
- b) 65 –The second section is the ratio of the height of the tyre's cross-section to its width. 65 means that the height of the sidewall is equal to 65% of the tyre's section width
- c) R – indicates the construction of the tyre. The “R” stands for radial, indicating that the body ply cords. These cords are layers of fabric that make up the body of the tyre, and run radially across the tyre from bead to bead. A “B” would indicate that the tyre is of bias construction, meaning that the body ply cords run diagonally across the tyre from bead to bead, with the ply layers alternating
- d) 15 – The last section is the rim diameter.

Also indicated on the tyre is the:



Load index – Indicates the maximum load in kilograms that a tyre can support when properly inflated and run at its maximum speed.

Speed Rating - H - indicates the maximum service speed for a tyre. "H" for example means that the tyre has a maximum service speed of 220 KMs per hour. Please note that this rating relates only to tyre speed capability, and is NOT a recommendation to exceed legally posted speed limits; always drive within the legal speed limit.

DOT – indicates the tyre is compliant with all applicable safety standards established by the U.S. Department of Transport. Tyres may also carry a European approval mark. Most tyres in South Africa will also be approved by the SABS although there is not necessarily an indication of this on the tyre – check with your dealer that the tyre is approved by the SABS.

Tyre Type - these markings define the proper use of the tyre. "P" means this is a passenger car tyre "LT" indicates a light truck tyre while "GT" means this a giant truck tyre.

TYRE MAINTENANCE:

Proper inflation is the single most important part of tyre care. Over-or under inflated tyres are the biggest causes of uneven tyre wear and increased tyre costs.

Under-inflation results in:

- Uneven, fast shoulder wear
- Tendency to have heel and toe wear on drive / block patterns
- Tread separations and casing failures
- Poor vehicle handling
- **Important: if the tyre pressure is 20% under-inflated, the tyre life will be reduced by approx 30%.**

Over-inflation results in:

- Tread center wear
- Increase in penetration and impacts
- Reduced driver comfort
- Increased vehicle damage (wear of suspension components) Higher risk of payload damage

Regular tyre checks by the driver can prevent many premature tyre failures which in turn will increase vehicle safety and reduces tyre costs.



Tyre pressure:

The correct tyre pressure is probably the most important aspect of prolonging tyre life and ensuring driver and vehicle safety. Always use the inflation recommended by the vehicle and tyre manufacturer. Always check tyre inflation when the tyres are COLD or when the vehicle has been driven less than 5 kms. Tyre pressures must be checked and adjusted every few weeks, or before any long trip.

Regular pressure checks must be done on all wheels including the spare wheel and particularly on inner wheels. If necessary fit a valve extension to the inner wheel.

Ensure your tyre gauge is correctly calibrated.

Rotation, balancing, and alignment:

All three elements should be checked every 10 000 kms!

- a) Tyre rotation: regular and proper tyre rotation promotes more uniform wear for all of the tyres on a vehicle. Tyres should be rotated on a regular basis, at least every 10 000 kms. The simplest method of tyre rotation is front to back.
- b) Alignment – Regular alignment checks must be carried out on all vehicles on a regular basis. Correct alignment is necessary for even tread wear, precise steering and vehicle handling and safety.
- c) Balancing - properly balanced tyres are important for driving comfort and long tyre life. Unbalanced tyres can cause vibration, resulting in driver fatigue, premature tyre wear and unnecessary wear to your vehicle's suspension. Tyres should be balanced when they are mounted on wheels for the first time or when they are remounted after repair. Tyres should be rebalanced at the first sign of vibration or uneven tyre wear. Vibration may also be due to misalignment or mechanical problems.

Tread depths:

Currently all tyres in South Africa have a legal non-skid limit of 1mm over 100% of the tread area. If any section of the tread is under this limit, it has reached the end of its life. Note, however that the optimum removal minimum tread depth for light and heavy truck tyres is considered to be 4mm, due to the option of retreading.



A timely replacement of tyres will prevent tyre damage, increase vehicle safety & reduce unnecessary extra operational costs,

Repairing a flat tyre

If a tyre loses all or most of its air pressure, it must be removed from the rim for a complete internal inspection to ensure there is no internal damage. Punctures may be satisfactorily repaired by trained personnel using industry-approved methods. Do not repair tyres with severe tread or sidewall damage and never repair tyres which are worn below the legal tread limit. Make sure your spare tyre is always ready to do the job. Check it regularly for proper air pressure and be sure that it is in good condition. If your vehicle is equipped with one of the several types of temporary spare wheels, be sure to check the spare tyre's sidewall for the correct inflation pressure, speed, and mileage limitations.

CONCLUSION

Ensure you introduce a proper process to inspect & check all tyres on a regular basis. This will lead to vehicle and driver safety and further contribute to a massive saving on your overall operating costs. It is important for driver participation to understand the effect of good driving behaviour and how this reflects on safety and reduced operating costs.

It is vital for the fleet manager to keep track of kilometres achieved per tyre and to validate what the life expectancy is of a tyre. Total tyre cost per kilometre (CPK) determines what tyre brand and pattern works best for the determined operation.

Remember, whatever vehicle you are driving or managing:

1. Carry out regular visual checks to look for irregular wear, punctures, or tyre damage
2. Check tyre pressure and inflation regularly
3. Rotate, align and balance your wheels every 10 000 kms
4. When replacing tyres, ensure your new tyres carry an SABS approval.
5. Keeping records of tyre use and failure is essential and fleet operators should realise the importance of accurate record keeping.



It is advisable to engage with your tyre company personnel who will be able to advise and guide you on effective tyre management.

Training courses on basic tyre knowledge, tyre fitment training and driver tyre training as well as effective tyre management are available on request. Please contact your Eqstra Customer Services Manager who will arrange such training on your behalf.

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