

# Rotation policy

Rotating tyres on commercial vehicles can help to extend their life and reduce cost of ownership – but how best to do it, asks Dan Parton

For transport operators, getting the best value for assets is crucial in an industry where profit margins are often small, and tyres are an important part of that. To get the maximum life and value from tyres, rotating them – either by turning the tyre 180° or moving them to the opposite side of the axle or to a different axle – is the best way to achieve this.

Dan Blower, a tyre fitter at Continental, says that the factors involved in rotating a tyre vary from vehicle to vehicle. “For instance, a long-haul unit and trailer may require the tyres to be rotated due to road camber. Refuse lorries, buses and coaches, on the other hand, tend to suffer from curbing damage that, if left untreated, would expose the sidewall cords and render the tyre illegal for continued use.”

Tyre wear can also be indicative of a mechanical problem. For instance, if a tyre on one side is wearing faster than the other, it can be because the wheel alignment needs readjustment. In cases such as this, timely remedial action – including not only fixing the misalignment but also rotating the tyres – is essential.

“The key is not to leave it too long,” says Steve Morris, technical services manager at Goodyear Tyres UK & Ireland. “Once irregular wear sets in – even if whatever causes that wear has been corrected – the wear will continue, if the difference is more than 3-4mm. It is all about having regular checks and



maintenance by competent people.

“Once the wear differential is about 3mm, you need to turn the tyre. Once you get much past that, you have lost it, and no amount of turning will stop the wear.”

## AXLE ROTATION

But when rotation is practised, the optimum time is when the tyre gets down to about half wear, according to Rob Blurton, technical manager at Michelin (pictured, p36). “[That’s the time] to either turn on the rim or change its position. It isn’t based on time or mileage, it is down to the wear rate.”

Moving tyres between axles can bring benefits, as Neil Davies, commercial fleet sales manager,

Continental Group UK & Ireland, notes:

“For example, a 6x2 tractor unit with a lift axle usually has a reduced rate of tyre wear on the lift axle. Good practice is to run the steer axle down to 3mm or 4mm tread, regroove the tyres and then move these to the lift axle. At this point, the lift axle tyres would typically have at least two-thirds of the original tread remaining. The cost of moving and fitting these would be more cost effective than fitting a new tyre.”

Davies adds that in the case of twin-wheeled axle set-ups, the outer tyre can also be swapped with the inner tyre. “For tyres that experience heavy sidewall scuffing, fleet managers might also consider turning the tyre on its rim, making use of the other sidewall,” he says.

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Rob Blurton

The picture is more complicated in terms of trailer tyres. “For trailers, it is very common to see regrooved tyres on the centre axle. This axle tends to have the slowest tyre wear rate, and a new tyre left on this axle could remain there for longer periods of time. All of these factors may, however, result in the tyre not being robust enough to go through the retread process once it has come to the end of its ‘first’ life. As a general rule, fleet managers should use tyres with under 8mm tread depth on the centre axle of the trailer and update the tyre policy accordingly.”

Daniel Hupke, manager, technical service and quality assurance at Falken Tyre Europe, adds: “The optimised load distribution on a trailer and also symmetrical unloading helps to even out the load on the axle position to prevent uneven wear. Monitoring the wear of the steer axle [tyres] provides information on when to change tyres from left to right (or rotating on the rim).

“On a three-axle trailer, it’s usually the last axle that wears the fastest, and the mid-axle the slowest. Changing positions of mid and last axle tyre sets also contributes to improve total mileage. For regional usage, one suggestion is to fit a highly cut-resistant tyre on the last axle, to increase mileage on that demanding position.”

Another factor is that trucks have specific steer and drive axle tyres (for example, see Birla Tyres’ suggested rotation diagram for 8x4 vehicles, below).

The Guide to Tyre Management on Heavy Vehicles, published by the Tyre Industry Federation ([www.is.gd/bavola](http://www.is.gd/bavola)) notes that it is not recommended to fit tyres designated for drive axle use on the steering axle as doing so can adversely affect the vehicle’s handling. It also recommends that only new or regrooved tyres should be fitted to steering axles.

**GENERAL RULES**

“You generally rotate or move tyres across an axle rather than around the vehicle,” says Michelin’s Blurton. “The only exception perhaps is taking steer tyres that have been worn and regrooved and putting them on tag axles. [But] you don’t just move steer tyres to a tag axle; it depends on conditions of use. While some can quite happily work with regrooved tyres on the tag axle, other conditions of use require something a little bit more robust.”

Meanwhile, for rear and drive axles, the Guide to Tyre Management on Heavy Vehicles recommends that only tyres of the same type, size, service description and wear are twinned together. The difference between the remaining tread pattern depths

on twinned tyres should not generally be greater than 4mm at the same stage of tyre life. Twinning different brands of tyre is also not recommended, as casing characteristics may differ, possibly causing accelerated wear to one tyre.

Nor is swapping tyres between trucks generally recommended, for reasons of excessive downtime. But if, for instance, a vehicle is being defleeted, any good tyres can be swapped to a vehicle still in service – provided that doing so complies with legal requirements, Blower notes.

Additionally, if a twin-wheel truck suffers a blowout, swapping tyres between trucks could be an option. “With a twin wheel, we insist there is a maximum of 2-3mm difference between the tyres, to ensure the best wear characteristics,” says David Howe, sales general manager – commercial of Goodyear Tyres UK & Ireland.

“If we went out to a breakdown, and they had a blowout on a drive inner tyre, to get the vehicle going, we would put a pair of tyres on the truck. If, on the other side of the vehicle, when we came to the regular inspection, we noticed a pair of tyres that would be a better match on another vehicle in the fleet, we may match them up.”

Getting the best performance is the goal of rotation practice. Tyre suppliers and manufacturers are best placed to give advice on optimum rotation patterns. Richard Torques, manager of Truckforce Equity, says: “With a lot of our customers, we are a partner and advise them on what we see as the right tyres to order for [their trucks], based on the experiences we have had.” 

