

The benefits of installing a tyre pressure monitoring system are best measured in terms of downtime, finds Kevin Swallow

Correct tyre pressures provide both financial and operational rewards. Better fuel economy reduces running costs; tyres last longer, saving money on replacements; and the number of roadside tyre breakdowns are reduced. That is the argument of all the providers of tyre pressure monitoring systems (TPMS): less downtime and more productivity. In an industry where money-saving devices – from software to hardware – are everywhere, why should TPMS hold sway?

The answer, in part, is pain. “A tyre failure,” says Midlands-based owner-driver Mark Wilson, “leads to uncertainty, delays and frustration. It’s time and money. Tyres can cost up to £400 each, plus call-out fees and labour are easily another £600.”

When tyre manufacturer Bridgestone launched its TPMS, it cited two main benefits for the fleet: optimal fuel consumption and reduced breakdowns. Its own studies showed that, on average, a fleet runs with up to a quarter of its tyre pressures at least 10% below recommended levels, and up to a twentieth at least 20% below the correct pressure.

There is also a safety element to this. At the CV Show, Bridgestone and Highways England campaigned for better tyre management. An 18-month study into 1,000



Working under PRESSURE

tyre fragments revealed that 18% of tyre failures were due to underinflation, second only to tyre penetration by foreign objects (see p13).

Bridgestone’s TPMS uses a valve-mounted sensor that sends information to a receiver at the fleet’s depot, as well as a cloud-based data system with the tyre service provider. The sensor, whose battery life is rated for three years, sends out a signal every six seconds. Data is then sent to the transport manager and workshop.

The TPMS from Michelin is offered as part of a wider package called Effitrailer, which as the name suggests, is aimed squarely at semi-trailers. A system for rigid vehicles and tractor units is in the pipeline, explains Paul Davey (pictured left), commercial director for Michelin Solutions in northern Europe. He adds: “Effitrailer is modular and includes things like a fridge sensor for temperature, a door sensor for security, refrigeration unit sensor, asset ID (this identifies which trailer is linked to which tractor unit), telematics, EBS warning and TPMS. This creates a telematics package for the operator and helps to utilise the fleet.”

Leasing each unit costs up to £30 a month per unit, with the TPMS accounting for about half of that. The

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benefit is productivity. Davey says: “If using TPMS stops one roadside tyre breakdown, then it has paid for itself. It improves uptime, maintenance and security.”

“Tyres tend to last longer at the right pressure, as road wear doesn’t damage the casing, making it more likely to get a retread. It’s worth repeating that a set of six tyres for a trailer is up to £3,000,” he explains. “It also flags up other areas; a rise in temperature might mean an EBS, brake pad or calliper issue.”

Underinflated tyres also distort the overall operational picture. A 10% drop below the correct tyre pressure means a 1.5% loss in fuel economy. Over the long haul that adds up.

Simon Waye is the technical support engineer at ATS Euromaster (owned by Michelin) and promotes the Effitrailer package to customers. His approach focuses as much on the wheel rims as it does on the tyres, and installing Effitrailer on to a haulier’s fleet justified this approach. He explains: “This company had an issue with some of its trailer tyres retaining pressure. We investigated and discovered a problem with the rims. Steel rims more than five years old tend to corrode, and air begins to seep out through the beading. Replacing the older rims that had deteriorated saved the operator hundreds of pounds on buying new tyres unnecessarily.”

CRYSTAL BALLS

Spotting an issue and dealing with it is where much of the TPMS market operates. However, some suppliers now offer algorithms to plot the future of a tyre on trucks and trailers. It’s been five years since Oxfordshire-based RL Vehicle Management Solutions kicked off its TPMS product using algorithms, branded as TyreWatch. This system employs a tyre pressure device, either fitted to the rim inside the tyre or as a cap on the valve, to relay information to

a server. It can also tap into the vehicles’ CAN-bus device to send telematics data as well.

TyreWatch commercial director Nigel Blackwell says: “We set up the software and algorithm to predict the life of a tyre once an issue is flagged up. It might be damaged or lose air pressure. The algorithm predicts how long it will last and what action is required. Since we started, not one customer has had a tyre blowout. We spot an issue and manage it, either there and then, or using the algorithm to manage it through the shift, then address the problem at the end of the day. Information is displayed on the computer; if a truck has underinflated tyres, it shows the current psi and temperature, and pre-set limits that the tyre is okay to work within. It will create an alert if the situation becomes critical,” he explains.

Launched in 2016, Goodyear TPMS also uses a sensor fitted around the rim of the wheel to relay the data. Sales leader in the UK and Ireland is Alan Latham, who says: “It emits a pulse, like

a heartbeat, and it will send an alert if that begins to change.” Customer car transporter company ECM has achieved a 95% breakdown avoidance rate as a result of fitting the system; Goodyear’s key performance indicator set by ECM is only 75%. Rather than sell TPMS systems on price, Latham compares the cost of the system to how much downtime it can prevent. For example, in ECM’s case, while constantly monitoring tyre pressure, the system also detected another issue. He explains: “ECM discovered a slow leak on several of its tyres. Further investigation revealed that the rubber seal on the valve was defective. Without knowing that, it would have changed tyres unnecessarily, at a significant cost.” **TE**

FURTHER INFORMATION

Selected manufacturers’ tyre pressure recommendations are linked below:

Bridgestone – <https://is.gd/ebocuc>

Continental – <https://is.gd/efumir>

Goodyear Dunlop – <https://is.gd/aluvad>

Michelin – <https://is.gd/alatov>

CASE STUDY

Paper and corrugated packaging producer DS Smith is adding Michelin’s Effitrailer across its entire 200-plus-strong fleet, after reporting zero trailer tyre-related breakdowns during a 40-trailer, six-month pilot project.

The system features an on-board datalink, TPMS and EBS data analysis.

Mark Abbey, general manager of UK logistics at DS Smith, says the six-month pilot flagged up 22 potential trailer tyre-related issues that were all rectified quickly. “This helped us maximise fleet uptime, and keep to our delivery schedule without fail. We’ve also improved efficiency across the pilot fleet, thanks to the programme’s schedule-tracking tools, which keep a close eye on the location of our trailers when they’re sitting at mills and recycling partners, and alert us to under-utilised assets. It has helped create efficiencies in the trailer fleet.”

