Flatout

BMW has made no secret of its commitment to run-flat technology. Can Goodyear's new RunOnFlat tyre prove that it has made the right decision?

Words: Chris Knapman

It's not often that my driving induces vomiting in passengers. They may scream, but to actually be sick is really something special. Luckily my passenger managed to extricate herself from the 530i I was J-turning before said regurgitation took place, and of even greater fortune was that I already had my defence worked out. It was all Goodyear's fault.

Let me explain. The tyre giant has just launched its new range of RunOnFlat rubber, and with it is making a lot of noise about this being the next generation of run-flat technology. To demonstrate exactly what it can do the company has invited along crack security driving team ICP to the Millennium Dome, along with a not so crack bunch of assorted hacks to show just how important this technology can be.

But all of ICP's driving skills – such as the sickness-inducing J-turn, whereby the driver reverses at full speed before spinning the car on its rear axis and blasting off in the opposite direction – or extensive knowledge of escape routes are of little use if their equipment lets them down.

For drivers in the business of high security, having a tyre that they can rely on, even when it's flat, can literally mean the difference between life and death, whether their convoy has been attacked in a wartime operation or they are dealing with the threat of hijacking when transporting top-level politicians.

Yet for the ordinary driver the prospect of escaping a potential hijacker is an unlikely one, let alone dodging shrapnel from a nearby grenade, but what about suffering a high speed blow-out on the motorway, or getting a puncture late at night while travelling alone? Situations where being able to continue your journey, albeit at a maximum speed of 50mph, can make a lot of difference.

After being shown by ICP how to complete a few evasive manoeuvres and getting the motion sickness into full swing it's time to bring out the stinger and get down to the serious business of puncturing tyres.

Favoured by the crew of *Police, Camera, Action* as the number one method of stopping car thieves who really don't want to stop, the stinger has undoubted credentials as a top rate tyre destroyer. Yet despite piercing several of its spikes into our RunOnFlat-equipped MINI the car remains driveable. Admittedly, the steering is heavy and the tyre pressure monitoring system has told us that all is not as it should be, but the car is still moving. This is

compared to a second MINI, this time running on standard rubber, which has long since ground to a halt, one tyre hanging off its rim, the others as flat as day-old cola.

However, this isn't necessarily anything that a whole other raft of run-flat tyres couldn't do. After all, the idea of a 'get you home' tyre is nothing new. Goodyear itself launched the first such system way back in 1934 and nowadays there are Continental's CSR, Michelin's Pax, and Pirelli's Euforia to name but a few. Indeed, the RunOnFlat system itself is a development of Dunlop's DSST and Goodyear's previous run-flat tyre, the EMT. So what makes RunOnFlat so special?

Well, to start with the new tyre can be fitted to a standard wheel and doesn't require any special tooling or hidden costs to fit or remove. While in theory this means you could fit RunOnFlat technology to older BMWs, both Goodyear and the Tyre Industry Council recommend that the system is only used on cars fitted with a tyre pressure monitor.

Most importantly of all though, Goodyear reckons it has cracked the ride comfort issue, finally producing a run-flat tyre that doesn't specialise in jiggling about your internal organs as a pay-off for the extra security that run-flat technology brings.

To find out we got hold of an E90 320i equipped with RunOnFlats and set about a challenging road route made up of typically pock-marked British A- and B-roads. The first thing you notice is that grip levels are as they would be on the standard tyre, the RunOnFlats using identical tread patterns – a move that also contributes to identical noise levels. As for ride there is no doubt that the RunOnFlats are a significant leap forward over previous run-flats, and while we concede that the suspension on the new Three has been engineered with run-flats in mind, this car rode noticeably smoother than a previous Three we have tested on the older Goodyear EMT run-flat tyres. Ruts and bumps were simply soaked up, the Three never losing its taut sports saloon composure or feeling anything other than planted.

Even with the front offside tyre deflated the Three remained easy to steer, so much so that you almost rely on the tyre pressure warning system to tell you you have a puncture. Under extreme cornering a flat RunOnFlat does produce considerable noise, but impressively the car itself remains stable and it was confidence-inspiring to know there was no danger of the tyre leaving the rim.

Another major criticism that has been launched at run-flats in the past is that once punctured they can't be repaired. Goodyear itself still recommends that if a RunOnFlat tyre has been used under deflated conditions then it should really be replaced, but if cost is an issue concedes that theoretically the tyres could be repaired by a qualified tyre technician. And with the tyres themselves widely available and only attracting around a 20 per cent premium on traditional rubber, not to mention the practicality issues of not having to carry around a spare wheel, it seems that the excuses for not choosing run-flats over traditional rubber are fast running out. Even BMW has expressed its confidence in the new technology, estimating it will fit five million of the new RunOnFlats to its cars in 2005, with the Three sure to be a huge market for the new tyre.

In the past choosing run-flats had always represented something of a compromise, but with the arrival of RunOnFlat and BMW's continued commitment to this technology it looks as though run-flats have truly come of age ●

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For more information check out www.runonflat.com

Not even the infamous stinger can stop a RunOnFlat-equipped MINI (below), whereas the car equipped with more traditional tyres soon ground to a halt (above); even when 'flat' the RunOnFlat tyres have impressive handling

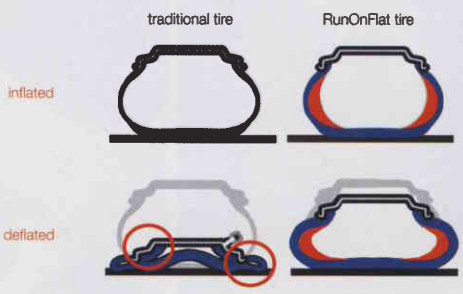
HOW RUNONFLAT WORKS

The idea behind the RunOnFlat tyres is that they feature inserts in the sidewalls that will support a tyre with a puncture. These inserts have been manufactured in a way that they are so strong that they, along with the RunOnFlat's reinforced carcass, can take the whole weight of the car should the tyre lose all air pressure.

However, when bearing such weight the tyre generates significant amounts of heat, so Goodyear created a rubber compound that could disperse heat much more effectively than a normal tyre, allowing the RunOnFlats to travel for 50 miles at 50mph without causing danger to the driver or damage to the car.

Finally, Goodyear had to develop a special bead anchoring system to ensure the tyre stayed attached to a standard wheel even when it was flat and subjected to the most extreme cornering forces.

The system doesn't end with the tyre itself though, for because RunOnFlats work so well, Goodyear stresses the driver may not even notice their tyre has a puncture. Therefore the company recommends RunOnFlat tyres should only be fitted to cars equipped with a tyre pressure monitoring system, be it of the direct (sensor fitted inside the tyre) or indirect (monitoring from ABS and stability sensors based on tyre rotation) variety.



Goodyear's RunOnFlat works using a reinforced sidewall so that the tyre retains some shape, even when flat