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DRIVEN: SEAT's 'stretched' Altea **REVEALED:** Renault's MX-5 rival

Owners run risk replacing run-flats

Test revealed hazards of replacing run-flats with standard tyres



IT'S official! Fitting standard rubber to cars which are designed to use run-flat tyres compromises safety.

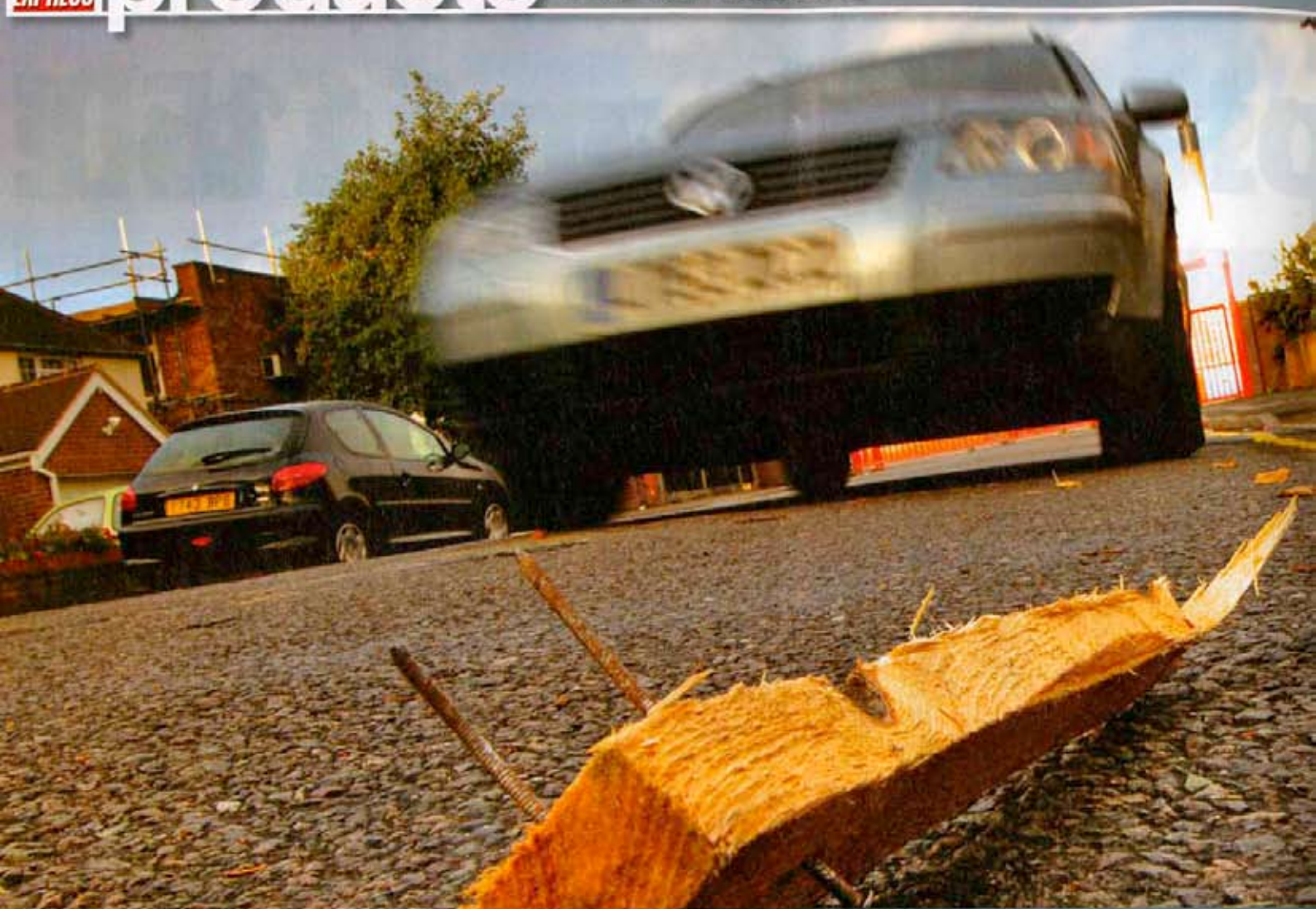
In an exclusive Auto Express test, we pitched both sets against each other on a wet and dry track.

The results, revealed in full from Page 70, include the whopping 3.5 metres added to our BMW 320i test car's stopping distance in the wet when we swapped its run-flats for standard tyres. The saloon also took longer to come to a halt on a dry road. While

owners can save up to 20 per cent by replacing run-flats with traditional rubber, the effect on the car's performance isn't the only reason this cost saving is a false economy. Fitting the wrong tyres to your vehicle could also invalidate your motor insurance.

National Tyre Distributors Association boss Richard Edy said: "These results reveal the folly of using ordinary tyres as a replacement for run-flats – it's a major safety issue."

PAGE 70: Run-flat tyre test



Run-flats nailed

Kim Adams

THERE'S a safety revolution going on under today's cars – and it's all down to run-flat tyres. As well as being safer when you get a blow-out, they mean you don't have to risk changing a wheel on the hard shoulder or even miss that flight or meeting.

It's the future, but punctures are relatively rare – one in six of us can expect to get one each year, with high-speed failures even less likely. So how do run-flats perform the rest of the time? Auto Express conducted the first magazine test to find the best for daily driving.

BMW has pioneered the use of run-flat rubber, making it standard on its 1, 3 and 5-Series models. So the firm's 320i was the obvious car for our test.

There may be 750,000 run-flats on UK roads, but in tyre terms that's a tiny proportion – which means only a few

companies offer them. For our 3-Series, we tried Bridgestone, Continental and Michelin sets. Goodyear, Dunlop and Pirelli also make run-flats, while Kumho has just entered the replacement market.

We conducted this trial along similar lines to our annual tyre test (see Issue 927). Performance was assessed on wet and dry roads, while noise, fuel economy and price were also factors.

Wet roads

WHEN the heavens open, the rubber to have is Bridgestone, although you'll also fare well with Continental.

In our aquaplaning test – rating when the tyre rides over the water, rather than cutting through it – Bridgestone's Turanza was on top. It had a healthy lead over the Michelin Primacy and Continental PremiumContact SSR during our straight line assessment, while on the curve test, the SSR pushed it harder. The



As 3-Series has been designed for run-flat tyres, it's the perfect test bed

Primacy struggled to shift water, as the grooves in the rubber distorted. Our wet handling assessment involved lapping a soaking circuit, and here the Conti SSR defeated the Bridgestone, with Michelin close behind. The German tyre was also the best under braking in the wet.

Dry roads

CONTINENTAL is king here, particularly when braking. Our BMW came to a halt from 62mph in a little over 36 metres – significantly better than when it was fitted with the rival tyres. The Michelin just scraped in under 38 metres, while

the Bridgestone needed 39.4 metres to stop our BMW from the same speed – and three metres can make all the difference in an emergency.

The German tyre backed its braking victory with another in the dry handling test. There was only a fraction of a second between it and the Turanza, but the Conti felt sharper, with the front less prone to understeer. The Michelin trailed in third, less than a second behind the top two, but it seemed to be struggling for grip over the lap.

How much?

WITH fuel such a major factor in the cost of motoring, rolling resistance – the power needed to turn the wheel and tyre – is becoming more crucial. A six per cent difference in rolling resistance is roughly similar to a one per cent change in fuel economy. Our test was carried out on a purpose-built

What we tested

Bridgestone Turanza ER300 RFT (Runflat Tyres)



Multiple Formula One champ is desperate to prove its run-flat rubber is also top of the podium.

Continental PremiumContact SSR (Self Supporting Runflat)



Brand is a serial winner in our standard tyre tests, and will be looking to continue form with new technology.

Michelin Primacy HP ZP (Zero Pressure)



Late to develop its stiff-sidewall run-flats, has the French company caught up fast enough?



Our test involved heavy braking from 62mph while in neutral – this ensured the tyres did all the hard work



DRY BRAKING



WET BRAKING

As in the dry test, we took average from multiple emergency stops on each set of tyres, this time from 50mph



We lapped a dry track with a mix of fast curves, hairpins and chicanes, taking an average time to get our winner



DRY HANDLING



WET HANDLING

This test pushed the limits of adhesion on the wet circuit by carrying as much speed as possible into the turns

They'll get you home after a puncture, but do run-flat tyres perform well the rest of the time? We test the best

Swap like for like for safety

DESPITE the safety benefits of run-flat tyres, some drivers will be tempted to fit standard rubber when they're worn out, as the new tyres are roughly 20 per cent more expensive.

In our test size, the standard Bridgestone ER300 cost £95, while the run-flat version we tried is priced £117. But you shouldn't let your wallet decide. On a car such as BMW's 3-Series, which is designed specifically to use run-flat tyres, conventional rubber simply won't work as well – as we discovered when we put a set of regular ER300s through the same tests as our run-flats.

In the wet, the standard Bridgestones performed around three per cent worse than the RFTs. Stopping from 50mph took an extra 3.5 metres, and control was lost earlier in both aquaplaning tests. The normal ER300 also needed another half-metre to stop in the dry. So the message is clear: always replace run-flats with run-flats.



AQUAPLANING

Straight-line aquaplaning was evaluated using a test rig to keep half the car in 7mm of water and raising speed. Curved aquaplaning (pictured) measured G-forces at 35mph and 55mph.



machine to industry standards at varying speeds. The worst performer was the Continental – a massive 20 per cent behind its rivals. And even though the Michelin brand is positioned as energy efficient, its Primacy HP ZP was narrowly beaten by the Bridgestone.

We called on the services of an industry price watcher to find our value for money winner. He surveyed a dozen outlets to work out an average per tyre. There's minimal difference between the Bridgestone and Continental, with the ER300 at £117 and the SSR on £115, fitted and balanced. The Michelin is a little more costly, at around £122.

How noisy?

EARLY run-flats earned a reputation for being noisy and uncomfortable, thanks to their stiff sidewalls – the technology behind the rubber is explained in our panel (opposite). But constant development has reduced this drastically, and all three brands have made similar progress. There was nothing between the Bridgestone and Michelin, with the Conti a fraction behind in terms of noise.

And those who believe run-flats are excessively loud should think again. The BMW run-flat package was significantly quieter than the Volkswagen Golfs we tested on regular rubber at the same time. The quietest tyres on the VWs registered 70 decibels (dB), while the BMW was around 67dB. And remember, a drop of 3dB is around half the noise.

How we got a winner

WE added the percentage scores from each discipline, but weighted them to ensure a win in a category where the performance gap was wide counted the same as when it was small. In our results table (below), the overall winner is given a 100 per cent score in each test, with the other rubber presented as a comparative percentage.

Verdict

IT'S no surprise to find three tyres developed for a specific car deliver similar performance. There wasn't much between the Bridgestone and Continental, but the former wins by 0.1 per cent.

It was the best performer in the wet, and matched its rivals elsewhere. Continental will rue its rolling resistance score – but for that, it would have won.

Michelin had its moments, particularly under braking, but the Primacy HP ZP lacked consistency. The French firm's emphasis on low wear counts against it in this assessment, which focuses on wet weather performance.

The contacts

Bridgestone 01928 488500
www.bridgestone-eu.com

Continental 01895 425900
www.conti-online.co.uk

Michelin 01782 40200
www.michelin.co.uk

Testing at a world-class site

TO conduct this first-ever run-flat test, Auto Express needed a truly world-class facility. And Bridgestone's £30million European Proving Ground, near the town of Aprilia, south of Rome in Italy, fitted the bill perfectly.

It only has dry testing facilities at the moment, dominated by a 4km banked oval and 300-metre-square handling pad. But it will get even better, as wet testing facilities are being built, including handling and aquaplaning tracks.

Our wet tests were carried out at the European Technical Centre at nearby Castel Romano, which also houses Bridgestone's laboratories and machine test equipment.



Huge site is dominated by 4km banked oval

The results

	Bridgestone	Continental	Michelin
Wet braking	100.0	103.8	102.7
Straight aquaplaning	100.0	89.6	90.5
Curved aquaplaning	100.0	96.7	85.9
Wet cornering	100.0	99.6	98.3
Wet handling	100.0	100.5	98.2
Dry braking	100.0	107.3	101.9
Dry handling	100.0	100.1	98.9
Interior noise	67.9dB	67.3dB	67.7dB
Rolling resistance	100.0	80.1	89.9
Price	£115	£117	£122
Final score	100.0	99.9	98.0

Results are a percentage relative to the winning Bridgestone rubber.



Why run-flats?

THE main reason for using run-flats is safety. In a high-speed blow-out, the tyre will stay on the rim and provide the driver with some degree of control.

What's more, when you have that puncture, you needn't put yourself in danger by replacing the wheel on the hard shoulder or verge, as you can drive to the nearest tyre outlet and get it fixed there. You can even wait until the next day; most run-flats claim to be good for 50 miles at 50mph, although many will go much further.

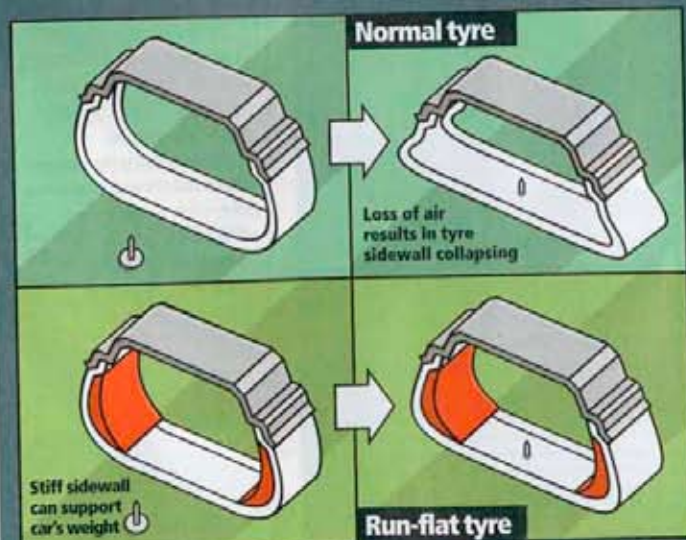
Car designers love this rubber, too, as it means they no longer have to find space for a spare wheel and changing equipment in their new models – not surprising given how tyre and rim sizes are continually growing. But this is particularly important on small cars and cabrios, where boot space is severely limited.

Despite the fact that run-flats are heavier than standard rubber, there should be another pay-off for fuel economy. There's no need to carry the extra weight of a fifth wheel in the boot, plus a jack and other equipment, which should cut consumption.

How does the technology work?

JUST about all run-flats look like ordinary tyres on the outside – they are the same size and shape, and have similar tread patterns. The big difference is in the sidewall, which is reinforced with rubber inserts. This strengthening means that when pressure is lost, the deflated tyre can still take the weight of the car. The other main distinguishing feature is the bead, which is super-strong and grips the rim far more securely than it would do on a standard tyre.

The exception is Michelin's PAX system, plus rubber created for the high-profile tyres found on off-roaders. These use a thick rubber belt in the rim which supports the vehicle when there's a puncture. PAX works well, and there are no ride comfort problems because there's no stiff sidewall. However, it needs unique rims, and car makers are reluctant to invest in wheels for exclusive use on their run-flat models.



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