

Under pressure

We investigate whether you can rely on garage air pressure pumps, find out how under-inflated tyres affect performance and recommend Best Buys if you want to do the job yourself

Driving with correctly inflated tyres is vital for safety – but you could come up unstuck if you rely on garages' air pumps, Which? has found.

Our mystery shoppers tested pressure pumps and gauges at forecourts in towns and cities, motorway service stations and traditional rural garages. We looked at whether they worked, how accurate they were and if we had to pay to use them.

Out of order

Across the country, we found one in six air dispensers out of order, but there was huge variation by area.

Drivers in the south of England were most likely to find machines not

working – we found more than one in four out of action – in the Midlands it was less than one in 13.

There was little difference between the three different types of outlet (rural, town or motorway) in how likely we were to find a working air pressure machine.

We tested 30 working pumps for accuracy at two different pressures: one to represent typical tyre pressure for a car in normal use (25psi) and one for a fully-laden vehicle (40psi).

In all cases the machines were reasonably accurate. Worst was a gauge which under-read by 3psi at the 25psi level and by 2psi at 40psi. These variations should not significantly affect how well a car handles.



ONLINE

Which tyres should you fit on your car? Have a look at our Best Buys to find out

See www.which.co.uk/reviews/tyres to find out more



Paying for air

We had to pay for air at six in ten of the forecourts we visited.

Most of these charged around 10p a minute to use, although it was 50p for two minutes at a Texaco garage in South London.

Our researcher who visited there wasn't too impressed with it either.

He said: 'It's out in the open. There is enough room for other cars to pass but it's often wet around the area as it's the same machine for water.'

'It's often broken, but luckily it was working last week.'

Nearly four in five of the rural garages we visited charged for air, three in five urban garages and just over half of motorway forecourts.

THE DANGER OF LOW PRESSURES

Does it really matter if your tyre pressures are low? We took a typical family car out to find out

Reduced tyre pressures damage every aspect of driving on wet and dry roads, our investigations have revealed.

We took a Peugeot 308, a typical family hatchback, and deliberately deflated one or more tyres at a time to see how this affected performance.

In every case, the car used more fuel and its systems such as anti-lock braking system (ABS) worked less well when the tyres were under-inflated.

We reduced the pressures of the different tyres as follows: from their original setting of 2.4 bar (35psi), first by 0.5 bar, then by 1.0 bar and then by 1.5 bar (down to 13psi). As a guide, one bar = 14.5psi (pounds per square inch).



Right front tyre deflated

The biggest single risk was to sideways (lateral) wet grip – that is, how well it was able to grip the road when a sideways force was applied.

We accelerated round a fixed-bend from 37mph to 60mph and measured how much sideways slip there was.

If the pressure in the right front tyre dropped by just 0.5 bar, the car's ability to keep its line was

reduced by 7%. When the pressure dropped by 1.0 bar, it lost one third of its lateral grip, although further reduction made it no worse. The car was also slower at making an emergency lane-change (in the dry). A drop of 1.5 bar brought the maximum swerve speed down from 44mph to just over 37mph.

Fuel use increased a little – by about one or two miles a gallon.

Right rear tyre deflated

This scenario has far less effect on safety, with one exception. In a situation such as when you have to change lanes in an emergency where the load is suddenly transferred on to the back wheel, a reduction of 1.5

bar led to diminished lateral grip, reducing the maximum test speed from 44mph to about 39mph.

All tyres deflated

Tyre performance here was generally similar to having low pressure in the right rear tyre, although the ABS was more effective. There was a similar drop in how quickly you could change lanes while still keeping control of the car, as was seen with one tyre deflated.



Tyres gauges and pumps

Our Best Buy tyre gauges and inflators will help you maintain your tyres at home, and hopefully avoid those unplanned trips to the garage



1 TYRE GAUGE

97% Michelin Digital Gauge 959809 £9

This is the easiest gauge to use we tested. It has a clear, easy-to-read digital display. It has a wide pressure range from 5 to 99psi, and the pressure reading is in psi or bar. It's accurate and was untroubled by our drop test. It's cheapest at Halfords.

WE LIKE It's easy to use and durable.



3 TYRE INFLATOR

75% Michelin 12260 High Power Tyre Inflator £68

This 12V device has a digital gauge, which can be removed and used on its own. This is confusing first time, but simple once you've worked it out. The connector head has a release valve, so if you overshoot, it's easy to release air. It's cheapest at Halfords.

WE FOUND It's the slowest Best Buy, taking more than six minutes to inflate to 25psi.



1 TYRE INFLATOR

80% Ring RAC 750 £60

This mains-powered inflator is easily the fastest electric device we tested for checking tyres. It was accurate within one psi in our tests.

It isn't one to keep in your car as it won't run off the car's 12V power supply. But it's good for regular checks in your own garage or drive.

There's an adaptor for inflating airbeds and footballs etc, and the analogue pressure gauge measures in psi, bar, kg/cm² and kPa. The manufacturer claims that it will inflate up to 250psi, if necessary. It survived our shower test and the durability test made no difference to its performance. It's cheapest at www.tyresonline.net.

WE LIKE This was the fastest electric inflator that we tested by some distance, albeit needing mains power. It inflated our tyre to 25psi in one minute 15 seconds.



ONLINE
Which tyres should you fit on your car? Have a look at our Best Buys to find out.

See www.which.co.uk/reviews/tyres to find out more



2 TYRE INFLATOR

79% Ring RAC 600 £27

This handy portable inflator uses the 12V supply from the car's cigarette lighter. It has one of the fastest inflation rates of all the 12V models that we tested.

It's easy to use with a clear digital display and you can take the pressure reading in psi, bar or kPa scales.

You can set the pressure that you require, let it pump, then it cuts out when it reaches that pressure. There's a torchlight and red light for alert/SOS use.

The Ring RAC 600 is accurate to within +/- 1 psi and it survived all our durability testing intact. It's cheapest at www.tyresonline.net.

WORTH KNOWING The Ring RAC 600 has a built-in lamp/torch that is designed for when you have roadside emergencies.



Don't Buy Sadly, this is one model that did little right in our tests

■ CHALLENGE 12-14L 12V AIR COMPRESSOR AND DETACHABLE LIGHT

The hose is so short it won't reach the valve if the wheel stopped with it at the top. But that's only the start of the bad news.

It inflates tyres very slowly and the analogue gauge

under-read all the pressures we checked. As a result, you would over-inflate your tyres if you stuck to the readings this machine gives.

But the most serious fault is that it failed our durability test before the test was even finished. Don't buy this inflator.



A traditional solution



Worth a place in your garage

DRAPER 87392 HP5 HEAVY DUTY HAND PUMP

This traditional stirrup pump is too large to store in many modern car boots, but it easily out-performed the three foot pumps that we tested.

Its analogue gauge is easy to read and the pump is surprisingly good to use, with a long stroke on the

handle. Even at higher pressures, the user doesn't feel too much resistance to pumping. The connector has two outlets, one each to suit car and cycle valves, avoiding the frustrating hunt for that elusive adaptor.

WE LIKE Its solid design makes it a reassuring addition to any garage.

Contacts

Challenge

0845 640 3030
www.argos.co.uk

Draper

023 8026 6355
www.draper.co.uk

Halfords

0845 026 4643
www.halfords.com

ITC

01530 278 480
www.international-tool.co.uk

Michelin

0800 591 859
www.michelin.co.uk

PCL

0114 248 2712
www.pclairtechnology.com

Race X

01295 220060;
www.racex.com

Ring Automotive

0113 213 7389
www.ringautomotive.co.uk

Sealey

01284 757 500
www.sealey.co.uk

How we test

We find how well they perform under pressure

We timed how long each inflator took to inflate a tyre from 0-25psi, then 25-40psi and finally 40-50psi, at each stage measuring the accuracy of the reading using a calibrated pressure gauge.

For the gauges, we carried out a drop-test (to simulate accidentally dropping the gauge from hand-height) on to a concrete floor.

We subjected the electric inflators to a shower test, to simulate using them in rain, then allowing time for the water droplets to run off (or into) the products. We then re-tested for speed and accuracy.

To assess the inflators' durability, we switched the power on (with a load applied to the pump) for 2 mins, 30 secs, then rested it for a further 2 mins, 30 secs. We repeated this 100

times to check that all was still in working order.

We rated each device for ease of use, considering the instructions, design, lengths of connection hoses and electrical cables.



Checklist

Follow our guide to keep your tyres in top-top condition.

Using garage air machines

■ If you notice your tyres need air because they look low, you probably need to inflate them more urgently than you think.

■ Avoid using garage air machines if you can.

All manufacturers recommend checking pressures 'cold'. Driving warms up the tyres, raising the pressure – one or two psi after about a mile, up to five or six psi after a motorway run. Adjusting to the recommended pressure then could leave your tyres under-inflated.

■ Ensure you know your tyres' correct pressures.

■ If you discover a slow puncture, get it repaired or replaced as soon as possible. A leaking tyre will wear quickly.



consumption and excessive wear.

■ Check your tyres weekly for stones in the tread, and remove any you find.

■ Check tyres for excessive wear, cuts and bulges – go and see a tyre fitter if you find any.

■ How you drive also affects tyre life. Balance and control are key.

Avoid harsh braking, rapid acceleration, fast cornering and kerb strikes.

■ Prepare to replace tyres when the tread depth falls below 3mm.

The performance will deteriorate below around 2mm. As a guide, a new tyre will have about 8mm depth.

■ If you use a pressure washer, avoid aiming the jet directly at the tyres. This can damage the tyre by washing away additives in the rubber that protect the tyres from the degrading effects of ultraviolet light.



■ Under-inflated tyres may fail catastrophically, leaving you to make a 'distress purchase', rather than buying tyres as planned maintenance, when you have the chance to shop around.

Tyre care tips

■ Check the pressures (cold) every fortnight and before long journeys. Low pressure leads to lower sideways grip, higher fuel



Which? online Changing a wheel

Go online at www.which.co.uk/advice/how-to-change-a-wheel

to see our step-by-step video guide to how to tackle this task simply.

We also give you car safety tips, things to look out for when changing flat tyres and advice on where to find the best tyres.

Our website also includes a wide range of other car-related tips including the best insurance, Best Buy tyres and the most reliable car brands on the market.



USING THE TABLE

We chose a selection of different types of tyre gauge and inflator available through high-street outlets.

Specification

Price For Best Buys we give the cheapest widely available high-street price as we went to press. Prices for other models are a guide.

Test performance

Inflating time We timed how long it took each pump to inflate a tyre from 0-25psi, 25-40psi and 40-50psi. We took the average scores for the three different pressure ranges:

★★★★★ means an average up to two minutes
 ★★★★ for an average of up to three minutes
 ★★★ for an average up to four minutes
 ★★ for an average up to five minutes
 ★ for an average up to six minutes.

Score

Ignores price and is based on:
 Performance (accuracy, inflation time, durability) **60%**
 Ease of use (ease of reading display, of inflation and of setting an accurate pressure) **40%**

TYRE GAUGES		SPEC	WHICH? TEST PERFORMANCE			SCORE %
		PRICE (£)	ACCURACY	DURABILITY	EASE OF USE	
1	MICHELIN Digital Gauge 959809	9	★★★★★	★★★★★	★★★★★	97
2	SEALEY TSTPG7 T/P & Depth Gauge	17	★★★★★	★★★★★	★★★★★	83
3	HALFORDS 361691 Long Nose T/P Gauge	8	★★★★★	★★★★★	★★★★★	82
4	ITC RH60XA Accu-gauge	24	★★★★★	★★★★★	★★★★★	80
5	MICHELIN 12280 Key Chain T/P Gauge	8	★★★★★	★★★★★	★★★★★	79
6	DRAPER 52304 Digital T/P Gauge	11	★★★★★	★★★★★	★★★★★	78
7	PCL 259044 Manual T/P Gauge	6	★★★★★	★★★★★	★★★	70
8	RACE X Dial Type Tyre Gauge RX00142	9	★★★★★	★★★★★	★★★★★	64

TYRE INFLATORS		SPECIFICATION		WHICH? TEST PERFORMANCE				SCORE %
		PRICE (£)	TYPE	INFLATING TIME	ACCURACY	DURABILITY	EASE OF USE	
1	RING RAC 750 230v Mini Compressor	60	Mains electric	★★★★★	★★★★★	★★★★★	★★★★★	80
2	RING RAC 600 12v Automotive Air Compressor	27	12V Electric	★★★★★	★★★★★	★★★★★	★★★★★	79
3	MICHELIN 12260 High Power Tyre Inflator	68	12V Electric	★★★★★	★★★★★	★★★★★	★★★★★	75
4	HALFORDS Tyre Inflator 531277	8	12V Electric	★★★★★	★★★★★	★★★★★	★★★★★	72
5	DRAPER 87392 HP5 Heavy Duty Hand Pump	33	Hand pump	n/a	★★★★★	★★★★★	★★★★★	72
6	HALFORDS 570952 Rapid Digital Tyre Inflator	45	12V Electric	★★★★★	★★★★★	★★★★★	★★★★★	71
7	DRAPER 14172 4430 Foot Pump	9	Foot pump	n/a	★★★★★	★★★★★	★★★★★	61
8	HALFORDS 115790 Brass Barrel Foot Pump	20	Foot pump	n/a	★★★★★	★★★★★	★★★★★	60
9	MICHELIN 12202 Twin Barrel Foot Pump	14	Foot pump	n/a	★★★★★	★★★★★	★★★★★	56
10	DRAPER 65958 DA12/250A 12v Mini Air Compressor	23	12V Electric	★★★★★	★★★★★	★★★★★	★★★★★	54
11	MICHELIN 12262 Hi Power Rapid Tyre Inflator	47	12V Electric	★★★★★	★★★★★	★★★★★	★★★★★	50
12	SEALEY MAC 1250 12v Mini Compressor	15	12V Electric	★★★★★	★★★★★	★★★★★	★★★★★	41
13	CHALLENGE 12-14L 12v Air Compressor & Detachable Light	13	12V Electric	★★★★★	★★★★★	★★★★★	★★★★★	31