

Edmunds Employees Put to the Tire Pressure Test

Survey Shows Even the Experts Underinflate Their Tires, Reducing Fuel Economy and Safety

Updated: 05/05/2009 - by [Philip Reed](#), Senior Consumer Advice Editor

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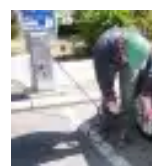
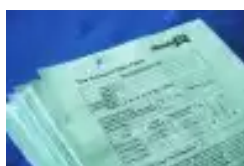
Tire Pressure Gauge

All employees at Edmunds.com were given a tire gauge and asked to check and adjust their tire pressure.

March 19, 2010 | Phillip Reed

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Picture freeways across the country jammed with millions of cars hurtling along at 70 mph and faster. Now picture this: Many of those cars are riding on dangerously underinflated tires, which wastes gas, wears out the tread prematurely and creates deadly driving situations.

How underinflated are those tires? How much gas is wasted? That's what we wanted to find out as part of an Edmunds.com Earth Day project. We gave digital tire gauges to all our employees, asked them to check their tire pressure and report the levels to us.

From the responses of more than 212 employees, here's what we found:

- Our employees' tires were underinflated by an average of 2.24 psi (pounds per square inch) or 7 percent — far better than the government's estimate of 26 percent (probably because so many Edmunds drivers are automotive enthusiasts).
- By filling their tires to the specified amount, our employees will save 5,820 gallons of gas a year (assuming they drive the national average of 15,000 miles a year).
- With properly inflated tires, employees will save an average of \$112 a year in gasoline (and even more by preventing premature tire wear). Some drivers with severely underinflated tires will save nearly \$800 a year.
- If the nearly 250 million registered passenger vehicles in the United States (according to a 2005 Department of Transportation study) were only 7 percent underinflated, and brought their tires up to the specified level, together they would save about \$23 billion per year.

Learning Goes Beyond Gas Savings

This project revealed much more than just the level of our employees' underinflated tires. We learned a lot about people's level of knowledge regarding tire pressure, inflation levels, tire wear and driving styles.

Many people, even at an automotive Web site like Edmunds.com, have never checked their tire pressure. This means the pressure is only adjusted when the tires are rotated, about once every six months to a year. This isn't often enough. Tires should be checked and adjusted at least once a month.

We also found that many drivers don't know what level to fill their tires to. Many people thought the pressure was listed on the sidewall of their tires. This is wrong. The correct tire pressure is listed on a placard found in the car's door, doorjamb, glove compartment or owner's manual.

Still more people seemed to be simply guessing how much air to put in their tires. They pumped air into their tires now and then to make sure they were over the required amount. But they didn't check and adjust the tires to make sure the tires were all approximately at the same level.

[Here's a quick how-to on checking and filling your tires.](#) And remember, you *can't* tell if your pressure is low just by looking at the tires.

How the Project Was Run

A week and a half before Earth Day, we handed out a digital tire pressure gauge and data form to each employee. On the form, we asked them to list their car's year, make and model, engine size, the manufacturer's recommended tire pressure, their observed tire pressure, the EPA's estimated fuel economy and their commute distance.

As the forms were returned, we entered the data into a spreadsheet, adjusted the fuel economy to the 2008 EPA estimates and created a number of calculations based on the data we gathered. It was a time-consuming process, since we had to look up the EPA fuel-economy estimates of pre-2008 cars (prior to 2008, the EPA estimates were overly optimistic). For cars built after model-year 2008, the EPA standards were changed to present a more real-world picture of the fuel economy that drivers actually get.

Safety and Tire Pressure

While the current concern about high gas prices has highlighted the fuel-economy improvement gained from properly inflated tires, the most important aspect of this issue is vehicle safety. The National Highway Traffic Safety Administration (NHTSA) estimates that underinflated tires are a factor in 660 fatalities and 33,000 crash injuries each year. The NHTSA survey estimated that 27 percent of passenger cars on U.S. roadways are driven with one or more substantially underinflated tire. Moreover, 32 percent of light trucks (SUVs, vans and pickup trucks) are driven with one or more substantially underinflated tire, according to that study.

Our article, ["Tire Pressure Monitors, Can You Rely on Them?,"](#) graphically illustrates how driving on tires that are underinflated by only 5 psi makes a dramatic difference. When the underinflated tires are then driven on a wet course, the result is frightening — very little rubber is still in contact with the road.

Underinflated tires don't allow the tread to make proper contact with the road and much of the grip is lost. This will affect the handling and braking of the car. Underinflated tires will also heat up as you drive and could eventually lead to a blowout. This heat factor is further amplified if you live in a warm-weather climate and if your vehicle is heavily loaded with passengers or cargo.

Under normal driving conditions, underinflated tires won't significantly affect the driving dynamics of the vehicle. However, if an emergency avoidance maneuver is required and the tires are underinflated, braking is severely reduced and the car's handling is compromised. The result could be the difference between life and death.

Pros and Cons of Overinflating Tires

Our tire pressure survey revealed that many people at Edmunds.com were overinflating their tires. The assumption must be that if a certain amount of air was required, then more air pressure would be even better. This isn't necessarily true.

When a tire is overinflated, the contact patch is reduced and the center of the tire tread wears faster than the outer edges. One tire expert from the Edmunds.com testing team said that this slightly compromises braking distances but actually improves handling because it provides more "bite" as the tire flexes during sharp cornering. This expert said he chooses 4 psi over the specified level.

One argument in favor of slight overinflation is that tire pressure levels decline gradually. If your normal amount is 4 psi over and you check it frequently, you don't run the risk of being underinflated. Furthermore, as the seasons change and the temperature drops, a slightly overinflated tire will not drop below the specified amount.

However, in most cases, the best rule of thumb is to check your tires when they are cold, fill them to the level specified by the manufacturer and recheck them every month.

Why Don't People Properly Inflate Their Tires?

If tire pressure level has such an important effect on fuel economy, why don't people take care of this basic task more often?

- In the past, tire pressure gauges were hard to use and difficult to read. Edmunds.com gave its employees digital tire gauges that were easy to use and read. A good digital tire gauge costs about \$10.
- The sticker or placard listing the specified tire pressure level can be hard to find and tough to read. If all else fails, look for the tire pressure level in the owner's manual. This is easier on newer cars, as a new government-mandated tire pressure placard was introduced in 2007. It has a standardized shape and design and is always located on the driver's doorjamb.
- Filling the tires at a filling station costs money and the air pump often isn't working. In many cases, state laws mandate that this service is free. Simply ask the station attendant to turn on the air compressor.
- Drivers assume that it's a dirty job that's hard to do. But with a little bit of practice, anyone can learn to use a tire pressure gauge. You will get your hands a little dirty, so find a place to wash up afterward.

Tire Pressure Monitoring Systems

New laws have forced carmakers to install tire pressure monitoring systems (TPMS) on all 2008 model cars. However, many of these systems only alert the driver to low tire pressure when the tires lose 25 percent of their pressure. Our test demonstrates that even a 7 percent loss in tire pressure is costly and dangerous. So it's important to check the tires manually even on modern cars with TPMS.

In recent years, because of increased publicity on this topic and the mandatory installation of TPMS on new cars, more people are paying attention to proper tire pressure. Several years ago, the government estimated that tires were an average of 26 percent below specification. Our finding of 7 percent below the proper level in part reflects the growing awareness of low tire pressure as a safety and environmental issue, but it also shows that Edmunds employees are perhaps more in tune with such automotive issues than the average driving public. The real average level of tire pressure is probably somewhere between the former average of 26 percent and the Edmunds average of 7 percent.

Conclusion

Keeping tire pressure at the specified level is important for fuel economy, safety and to prevent tire wear. It only takes minutes to check and fill your tires and in most cases, it's free. The only obstacle to achieving this goal is a \$10 tire pressure gauge, a little knowledge and some initiative. With gas prices pushing higher every

week and a set of new tires easily running \$400, it's high time to make this bit of maintenance a cost-saving habit.

To find a dealership that knows how to treat shoppers right, please visit [Edmunds.com's Dealer Ratings and Reviews](#).