

Your Car's Tires

There is a reason why your tires are more likely to go flat on a rainy day: water is an excellent lubricant for rubber, and the presence of water makes it easier for sharp objects to penetrate and deflate. Why are you also always wearing your best suit when you have a flat? I don't know.

Pneumatic tires are, in many ways, enigmatic. Various forms and types of natural and synthetic rubber are cooked together with some cords of fabric or steel, put on a rim, inflated, and roll down the highways and streets and many other places, rarely ever complaining with a failure. Yes, the cords and rubber have some strength of their own, but the contained air gives a tire its load-carrying capacity. The larger the tire and/or the higher the pressure, the more load a tire can take. (But don't take that as a suggestion that you can overload a tire by overinflating it—that's just dangerous.) The purpose of this newsletter is to explain some basics about tires; I anticipate that future newsletters may address certain types of specific failures in pneumatic tires.

The single most important factor in the durability and safety of your tires is maintaining the proper inflation pressure. In general, the proper inflation pressure for tires on your car will be shown on some sort of placard placed on one of the door openings or inside the glove compartment door and will also be specified in your owner's manual. If these resources aren't available to you, your local tire store can provide you with that information. It is very important to maintain proper inflation pressure in all of your tires.

All tires manufactured for sale in the United States must have certain minimum standards of marking. These standards include some basic labeling regarding size, load rating, speed rating (optional), construction, maximum inflation pressure, and other information.



The picture on the left, above, shows standard size markings. The P indicates that the tire is for passenger vehicles. The 235 is the width of the tire from one sidewall to the other sidewall, expressed in millimeters. (One inch equals 25.4 mm.) The 55 is the aspect ratio, the ratio of the height to the width; numbers below 70 indicate a shorter sidewall, which provides for better handling on dry surfaces, at least in theory. The R means that the tire is of radial-ply construction. The 17 is the rim diameter in inches. The 98 is the tire's load index; you have to look at a chart to determine what that value means. A load index of 98 represents a load-carrying capacity of 1653 pounds. The H is a speed rating letter; H corresponds to a speed capability of 130 mph. Not all tires are speed rated, but most are. The M+S indicates that the tire has some mud and snow capability; most passenger car tires acquire that capability primarily as a consequence of being of radial-ply design. Tires designed for light trucks have similar markings, except that the P will be replaced with LT. Often, the light truck tire will have a letter designating its load range, a carryover from the days before numerical load indexing, in addition to the numerical load index.

The picture on the right, above, shows the section of the tire's sidewall with the Uniform Tire Quality Grading System (UTQGS) codes. The treadwear grade is a relative measure of a tire's tread life: a tire rated 400 should last twice as long as a tire rated 200. The traction grade reflects the tire's ability to stop on wet pavement; the grades are AA, A, B, and C. The temperature code, A, B, or C, is a relative indication of the tire's resistance to damage from heating. As in grade school, the tire with an A is perceived as a better tire than one with a B, and a tire with a B is perceived as better than one with a C. Tires with grades of D and F never graduate to become highway-use tires.

If you would like more information on this topic, please write your name plus your telephone number or email address: _____

Or, you may contact me directly with your questions, by the method of your choosing.

If you have any comments, questions, or suggestions regarding content of this or future newsletters, I welcome them. You may use this form to comment by filling in the lines and mailing it, or, as always, you are welcome to contact me by any method of your convenience: _____