



TIRE AGING: WHY SHOULD YOU CARE?

Because the safety of your family and friends are riding on them.

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DO YOU KNOW HOW OLD YOUR TIRES ARE? WHY SHOULD YOU CARE? BECAUSE YOUR SAFETY AND THE SAFETY OF YOUR FAMILY, AND YOUR FRIENDS ARE RIDING ON THEM.

The federal government, through the Federal Motor Vehicle Safety Standards, requires tire manufacturers to label tires in a very specific manner with a variety of information.¹ The Standards not only require some obvious choices, such as the size of the tire, the maximum inflation pressure, the name of the manufacturer, as well as the brand name or number, but they also require a Tire Identification Number (TIN) be included on the sidewall of your tire. The typical TIN looks something like this, “DOT MA L9 ABC 0307.” Unfortunately, there is currently no requirement that the manufacturer, distributor, or retailer must bring the code to the consumer’s attention, much less decipher it. So let’s break it down. By imprinting “DOT” on the tire, the manufacturer is certifying that its tire meets or exceeds the Department of Transportation’s Safety Standards; “MA” is a code number assigned by the DOT to a particular manufacturing plant; “L9” represents the tire size; “ABC” is a group of symbols that the manufacturer can use to identify the brand or other significant characteristics of the tire; and “0307” indicates when the tire was manufactured. “0307”???

Unless you’ve handled a tire failure case, these four num-

bers probably still don’t mean much. A tire imprinted with “0307” in the last four spots of the TIN was manufactured the third week of 2007.

SO NOW THAT YOU KNOW HOW TO DETERMINE HOW OLD YOUR TIRE IS, WHY SHOULD YOU CARE?

From the day a tire is manufactured, it begins to age. And while it’s true that the design of the tire can make a difference in how fast or how slow the process is, the fact remains that as tires age, they experience thermo-oxidative degradation. The key word being “degradation.” How does it occur? The simple answer is that as tires age, they become weaker; as oxygen interacts with rubber, it degrades; and when extreme heat is added in, the process accelerates. When this happens, tires fail. The outer layer of tread, which can still look new, separates from the carcass of the tire. This generally happens at highway speed, and can be difficult, if not

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and sought input for test methods that could duplicate what happens in the real world. This would help manufacturers protect against failure when designing new tire line products. Despite the research and studies, the responses from the tire manufacturers were largely negative, indicating that aging was not an issue and that there were no adequate test methods. Lacking data and testing, NHTSA was forced to abandon its proposed rule.⁷

About the same time, Ford Motor Company, which was in the middle of the Firestone tire fray, began investigations of tire aging issues. Ford's team conducted a methodical evaluation of thermo-oxidative aging and its effects on radial tires, and developed more precise tire age test methods, publishing their results in the peer reviewed journals – something the tire industry had never done publicly.

In early 2005, Ford's research concluded that a 6-year replacement "recommendation" for tires, regardless of tread, was needed.⁸ The warning was placed on its website in early 2005 and appears in all of 2006 model year and later owner's manuals. Days later, DaimlerChrysler admitted that it, too, was adding this 6-year warning: "Tires and [the] spare tire should be replaced after six years, regardless of the remaining tread. Failure to follow this warning can

result in sudden tire failure. **You could lose control and have an accident resulting in serious injury or death.**"⁹ Unfortunately, neither Ford nor Chrysler has done anything to warn owners of older model vehicles about the dangers of aged tires.

GM issued a statement that it doesn't believe that tires should be replaced after a certain amount of years unless that tire has been exposed to high temperatures, high speed or heavy loads. "The fact is that most tires wear out before they age out."¹⁰ However, this seems contrary to the information it's been including in its' European models since the early 1990s, "Tyres age even if they are used only very little or not at all. A spare wheel which has not been used for six years should be used in emergencies; drive slowly when using such tires."¹¹

By the end of October 2005, Bridgestone/Firestone broke ranks with other tire makers and issued a "Technical Bulletin" to its dealers advising them that tires should be inspected after 5 years and replaced after 10—"even when tires appear to be usable from their external appearance or the tread depth may not have reached the minimum wear out."¹² The company said this was based on a Japan Automobile Tire Manufacturers Association (JATMA) recom-

impossible, to control. If you've been completely in the dark about this, don't be embarrassed, the vast majority of individuals in the United States have no idea how to determine the age of their tires; no idea that they should consider it as a safety factor; and no idea of the danger an aged tire poses.

BUT IT'S FASCINATING TO TAKE A LOOK AT WHO DOES KNOW AND HOW LONG THEY'VE KNOWN.

Interestingly enough, it wasn't tire manufacturers that began releasing information about the risks of using old tires, it was auto manufacturers, and foreign manufacturers at that. In the early 1990's, Toyota, BMW, VW, Audi, and General Motors (Europe) included a variety of warnings in owners manuals.² Toyota was the lengthiest with "Any tires which are over six years old must be checked by a qualified technician even if damage is not obvious. Tires deteriorate with age even if they have never or seldom been used. This also applies to the spare tire and tires stored for future use."³ Audi gave perhaps the best advice, "Tires age even if they are not being used. Tires which are older than 6 years should only be used in an emer-

gency and with caution."⁴ While the disclosure was a great idea, it unfortunately was buried in the owner's manual and still required that you knew how old your tire was.

It wasn't until the National Highway Traffic and Safety Administration's (NHTSA) investigation of the Ford-Firestone tire failures that tire aging issues first surfaced publicly in the United States on a major scale. The Firestone tires at issue were the ATX and Wilderness AT tires. NHTSA noted that the Wilderness tires were failing predominantly after several years of service and that **age** was a factor, particularly in the **higher temperature** environments, with one statistic showing "85 percent of the injuries and 90 percent of the fatalities occurred in the southern states, with 68 percent of the fatalities occurring in California, Arizona, Texas, and Florida."⁵ This was due to the internal rubber in the tire becoming less resistant to fatigue crack growth as it aged, thus increasing the risk of failure. NHTSA's investigation showed that "these tires are experiencing age-dependent fatigue failures that will create an escalating risk of crashes and injuries if they are not removed from service."⁶

Knowing this, NHTSA attempted to gather information from the industry in order to address the effects of tire aging



mentation and claimed that there is no technical data that supports a specific tire service life; it's just a good practice. However, the bulletin defaults to the vehicle manufacturers' recommendation, which means that they are in essence recommending 6 years.

By February 2006, Michelin, Continental-General and Cooper all issued similar bulletins advising that tires should be replaced after 10 years or following the vehicle manufacturers' recommendations (Michelin and Cooper held to 10 years with no reference to the vehicle manufacturers).¹³ Goodyear remains silent with no advisory.

In August 2007, NHTSA issued a Research Report to Congress on Tire Aging, citing in it analysis of an insurance company's tire claims reported from 2002 through 2006.¹⁴ The analysis found that 77 percent of the tire claims came from five hot-climate states, including Florida, and that 84 percent of those tire-related claims were for tires over 6 years old. NHTSA's report also cited to a Rubber Manufacturers Association scrap tire study that was conducted with scrap tires from Arizona, California, Florida, Pennsylvania, Massachusetts, Oregon, and Illinois. The study "showed that after 4 years, the rate of tire damage was significantly greater in Arizona, and that in every case, tires from those states with

higher average ambient temperatures had higher rates than states with lower average ambient temperatures."¹⁵ NHTSA determined that studies "showed the aging phenomenon was a thermo-oxidative degradation process, i.e., degradation due to [the tires] heat and oxygen exposure over time, and that this thermo-oxidative degradation is accelerated with higher temperatures and is a contributing factor for tire failures, such as tread separations."¹⁶

In 2008, NHTSA finally informed consumers about the dangers of tire aging. On June 2, the agency released a consumer advisory as a kick-off to the summer driving season.¹⁷ The all-purpose warning for motorists to check their tires – including the spare – for signs of wear, under-inflation and age, was an important public acknowledgement of the safety hazard the agency has long understood. While NHTSA's Consumer Advisory did not define any tire age limit, it did refer to vehicle and tire-makers' age recommendations. The advisory also reminded motorists that summer heat, especially in hot climates, can take its toll on worn, old or improperly inflated tires leading to tread separations, crashes, and rollovers.

Since 2008, there have been no changes in the federal government's attempts to educate and protect consumers in



this regard. Because of that, a number of states and even one county in New York, have been working towards legislation that would require tire retailers to provide basic information when selling or installing tires.¹⁸ During the 2010 session, Senator Dan Gelber and Representative Luis Garcia sponsored SB1156 and HB797, respectively. These identical bills would have required any retailer who sells or installs a tire, whether new or used, to provide the customer with the following in advance of mounting the new tire or removing the customer's old tire:

- The week and year that the tire was manufactured;
- The length of the remaining factory warranty on the tire; and
- The following statement regarding why age of a tire is an important factor to consider.

"Passenger and light truck tires, including spare tires and tires that are stored or have had little or no use, deteriorate as they age and are more prone to sudden failure that can cause a crash. Heat caused by hot cli-

mates or frequent high-loading conditions can accelerate the age process. Most vehicle manufactures recommend passenger or light truck tires be replaced after 6 years, regardless of the remaining tread depth."

The bills also provided certain exceptions and provisions regarding enforcement. Unfortunately for the citizens of the state of Florida, neither Bill made it out of committee. Hopefully the 2011 session will be more successful for these Bills. By providing consumers with this basic information that is needed to make intelligent choices about tires, more old tires will be removed from service before they become a serious safety hazard; crashes will be avoided; and most importantly, lives will be saved. At the end of the day, isn't that what it's all about?

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1 The National Highway Traffic Safety Administration has a legislative mandate under Title 49 of the United States Code, Chapter 301, Motor Vehicle Safety, to issue Federal Motor Vehicle Safety Standards (FMVSS) and Regulations to which manufacturers of motor vehicle and equipment items must conform and certify compliance.
2 1990 Toyota Land Cruiser Owner's Manual; 1991 BMW 5 Series Owner's Manual; 1990/1991 Volkswagen Passat Owner's Manual; 1992 Audi S4 Owner's Manual; 1994 Vauxhall Monterey Driver's Manual.
3 1990 Toyota Land Cruiser Owner's Manual, pg 133.
4 1992 Audi S4 Owner's Manual, pg 135.
5 U.S. Department of Transportation, National Highway Traffic Safety Administration, DOT HS 810 799, Research Report to Congress on Tire Aging, August 2007, pg 5.
6 U.S. Department of Transportation, National Highway Traffic Safety Administration, Engineering Analysis Report and Initial Decision Regarding EA00-023: Firestone Wilderness AT Tires, October 2001, pg.12.
7 DOT 49 CFR 571 Docket No. NHTSA-03-15400 RIN 2127-AI54.
8 www.ford.com/en/innovation/safety/tireSafety.htm (3 of 5)5/2/2005 7:50:05 AM.
9 2006 Jeep Grand Cherokee Owner's Manual, pg 293.

10 GM Statement Regarding Tire Aging, June 1, 2005.
11 2005 Vauxhall (GM UK) Corsa & Combo Owner's Manual, pg 165.
12 Bridgestone Firestone Technical Bulletin, Oct. 2005, Ref. No. P-05-10, Tire Inspection Guidelines.
13 Michelin North America, Inc., Technical Service Bulletin PM-06-02, "Service Life for Passenger Car and Light Truck Tires including Spare Tires," February 9, 2006; Continental Tire North America, Product Service Information Bulletin PSIB 06-02, Tire Maximum Service Life for Passenger Car and Light Truck Tires," February 13, 2006.
14 U.S. Department of Transportation, National Highway Traffic Safety Administration, DOT HS 810 799, Research Report to Congress on Tire Aging, August 2007.
15 Id., pg 6.
16 Id., pg 6.
17 National Highway Traffic Safety Administration, Consumer Advisory: Motorists Warned to Check Tires Before Summer Trips; Press Release; Rae Tyson; June 2, 2008.
18 Suffolk County, New York, local law, No. 54-2008 prohibiting the sale of tires greater than 6 years; New Jersey, Proposed Rule through the Division of Consumer Affairs, Pre-Proposal Number: PPR 2008-2 (12/1/08), regarding the Sale of Tires, N.J.A.C. 13:45A-26D.4; California AB496, as amended.

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