

CORVETTE



TIRE SAFETY

BY TOM RUSSO

WHAT YOU NEED TO KNOW BEFORE TAKING THE ROAD ON THOSE 30-YEAR-OLD TIRES

As a Corvette owner, you understand the need to replace tires when the tread pattern is worn as well as replacing a tire with a puncture in the sidewall. You also know the importance in keeping tires properly inflated. But, do you understand the affects of tire aging and resulting safety issues of "new" old tires?

At the NCRS Regional meet in Orlando this past January, a vendor was hawking an original P255/60R15 set of tires with less than a hundred miles—removed from a 1978

Pace Car—and stored for the last 30 years.

The date code on the tires showed that

they were manufactured in January 1978. Most enthusiasts know that these are "show" tires, but the novice Corvette enthusiast may not readily recognize the limitations of these aged "new" tires and the considerable risk. Complete this study of tire codes and you'll be well equipped to take on tire hawkers, tire shops and any set of four tires you find in your path.

TIRE CODES BACKGROUND: In 1971 federal regulations required tire manufacturers to stamp each tire with a Tire Identification Number (TIN), which permit tires to be traced and recalled in the event of a tire-related accident. The letters "DOT" accompany each TIN and indicate that the tire meets all federal standards set by the U.S. Department of Transportation (DOT). The format of the TIN varies from one tire manufacturer to another.

In the years that followed the 1971 federal regulations for tire manufacturers, additional



safety labels were added to the tire and manufacturers had much leeway as to how this information was stamped. Regulators and industry watchdogs would wait until 2000 before issues of tire safety would be taken up once again with TREAD.

According to the TREAD Act of 2000 (Transportation Recall Enhancement, Accountability, and Documentation Act), by 2009 tire manufacturers are required to stamp each tire on the outboard side with the tire identification number (TIN code), which will help guide consumers when replacing a tire ... under a recall. But as of this writing, the date code format to be used is not unlike that introduced in 1971 and owners must "interpret" a code to arrive at a tire's age.

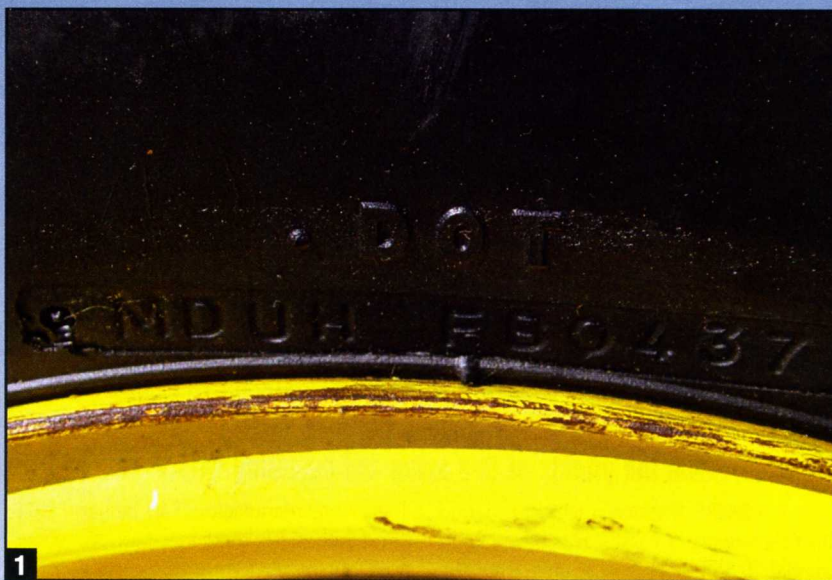
Tire safety advocates had hoped final regulations would include an expiration date not unlike the expiration date stamped on your gallon of milk. For decades, safety advocates have pushed for a tire expiration date to replace the "consumer unfriendly" date code required by law since 1971. The recent renewal in the expiration date resulted from the Firestone recall of 2000/2001 that underscored the catastrophic separation of belts from tire treads. Safety advocates are also petitioning DOT officials for a tire life expectancy ... a guideline for consumers that advises

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them as to when those tires have reached their lifecycle—regardless of tread depth—and it's time to take them off the road.

TIRE CODES DECODING: While there are many labels and codes embossed on each tire, our discussion is limited to the DOT, TIN and speed rating labels. The TIN labeling is traditionally located on the inboard side of a tire. To read it the vehicle must either be on a lift or the tire removed from the vehicle. The location of the date code, in addition to its code format, has served as fuel for the argument by tire safety advocates that this date be located on the outboard side of the tire where consumers can conveniently access this information, as well as labeled in a consumer-friendly format.

For the 1971-'82 period, the DOT label was centered above the TIN and at some point in 1981-'82 a transition was



1 This is the TIN from a Polyspare tire installed on a 1978 Anniversary Corvette with a date code of the 43rd week of 1977. The trim tag on the '78 is November 10, 1977. The yellow rim was equipped on 1978 Corvettes through the middle of Pace Car production or the end of March 1978.



2 A typical 1980 P255/60R15 date code shows that tire assembly still used a single gang (actually called stencil plate) to mold the TIN into the tire. The DOT label is printed on the topside of the TIN. This tire was manufactured the 50th week of 1980.

made to stamp DOT in front of the TIN. Today the "DOT" label precedes each twelve-digit alphanumeric TIN. Look for the DOT and you'll find the TIN.

The first series in the TIN represents the tire manufacturer and plant code where the tire was made, while the last three digits are the date code. In addition to the week and year, tires are labeled with production line, press mold, tire construction and other information. Beginning in 1997, tire manufacturers began to use a four-digit date code. For example, the numbers 3197 means the 31st week of 1997. Other numbers may also be utilized

which are marketing codes used at the manufacturer's discretion, but it's the last digits of the TIN that convey the tire date code (located on the backside of the tire). Equally important to understand is that the format of labeling changed during the formative years of the TIN, as explained in each of the accompanying photos.

Each image is of a Goodyear P Metric tire manufactured between 1977 and 1991, except figures 6 and 7. Figure 2 shows a 1980 TIN format with a string of characters molded into the tire with a single gang (or stencil plate). Figure 3 shows a 1982 TIN format with the date



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3 An Eagle GT off of a 1982 Collector produced in May of 1982. It shows how the DOT label is moved from the top to the side followed by the single stencil plate that incorporates tire manufacturer, plant and date code.

4 By 1983 the front portion of the TIN was pre-molded on this Eagle GT followed by two stencil plates with plant information and the date code (213 – 21st week of 1983).

code stamped but detached (separate stencil plate) from the molded portion of the TIN. Figure 4 shows a GT service

replacement tire but manufactured in 1983. Figure 5 illustrates how the TIN format stabilized through the 1980s while Figure 1 shows a 1977 Polyspare tire and its TIN. Figures 6 and 7 show C5 tire codes.

The photos demonstrate the evolving TIN formats used during the '70s and early '80s. While readers will encounter these various formats, which can be confusing, the location of the date code at the end of the series is consistent. Look for the three digit format with the first two

digits representing the week followed by a single digit for the production year ... unless it's a tire manufactured after 1997.

Speed rating was first introduced with Goodyear's Gatorback tire in the early 1980s and carried a "V" code, representing a tire rated up to 149 mph. An instant success among the performance crowd, other manufacturers copied and produced their version of the Gatorback tire. After 1991 code placement was standardized so that it followed the tire size label. The format is "P255/60R15 102S" where the



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102 is the load index and the "S" is the speed rating. The "S" rating suggests a tire capable of speeds up to 112 mph. Note the rating for that P255/60R15 tire ... 112 mph. These tires are not engineered to sustain either the speed or heat buildup of today's Z-rated tires on C5/C6 Corvettes.

A "Z" rating was later established for tires engineered to sustain speeds over 149 mph. The key to success of performance tires that carry these ratings is a nylon cap engulfing the steel belts to

hold the tire together at high speed. At the time, few suspected street performance would exceed these speeds; then Corvette engineers pushed the envelope and Goodyear responded with both "Y" and "W" rated tires. Today, Corvettes are equipped with tires capable of extremely high top speeds and carry the "Y" rating (186 mph). Note also that these codes are found on both sides of a tire. But let's be clear, these are not the ratings for those 25-year-old P255/60R15 tires.

Figure 7 shows a P275/40ZR18 "Z"

5 The TIN from an Eagle GS manufactured in 1991. The DOT precedes the TIN pre-molded portion along with tire manufacturer and plant information. Two separate stencil plates were used with the last being the date code or 331 ... 33rd week of 1991. Of course this could be interpreted to be 1981, but Goodyear was still producing the GT series. The 102S speed rating nails down the year of production however.

6 This illustrates a full TIN and four-digit date code on the outboard side of a Goodyear P275/40ZR18 Corvette tire dated the 16th week of 2000.



rated tire from a 2000 Corvette with a "Y" speed rating. Note the evolution of the letter configuration and size. The Z precedes the rim size (R18) but is followed by a speed rating (94Y) to further delineate its limitations.

WHAT'S NEXT? Safety advocates are hopeful that with the new wave of federal regulations for tire safety, a consumer-friendly date code will be incorporated into the requirement to print the TIN on the outboard side of a tire. However, as of this writing, you can peruse the aisles

SAFETY ADVOCATES ARE HOPEFUL THAT WITH THE NEW WAVE OF FEDERAL REGULATIONS FOR TIRE SAFETY, A CONSUMER-FRIENDLY DATE CODE WILL BE INCORPORATED INTO THE REQUIREMENT TO PRINT THE TIN ON THE OUTBOARD SIDE OF A TIRE.

of your neighborhood tire store and see much variation. Tire manufacturers have begun to print the TIN on the outboard side but continue to use the full TIN with the entire array of codes.

Some U.S. tire manufacturers have adopted to recommend that after six years of service, tires be replaced. Bridgestone/Firestone adopted this



This illustrates a speed rating of "Y" for a P275/40ZR18 rear tire from a 2000 Corvette.

recommendation in 2006. And the list of U.S. tire manufacturers adopting tire life expectancy limitations continues to grow. What is the implication for those 25-year-old tires still in service? Expiration, retirement and a life expectancy fulfilled!

We love to drive Corvettes for the

thrill, performance and handling, but must do so in as safe a manner as possible. And it all hinges on tire safety—properly inflated tread-rich tires with date codes that fall in the life expectancy for a set of tires. The next time you pull those tires for cleaning, check not only tread depth but the date code as well.

CORVETTE TIRE SAFETY: WHAT WE KNOW

Many avid Corvette enthusiasts are classic car owners, which means "new" old tires are kept for decades which subjects them to the same risks as those Bridgestone/Firestone tire recalls of the early 2000s. New owners purchase well-preserved original Corvettes, but are unfamiliar with precautions that must be taken before placing America's Sports Car on America's roads.

For Corvette owners, there is both good news and bad news in the results of this most recent round of tire blowout studies. The good news ... high-speed-rated tires with their robust construction are less likely to blow. The bad news ... they are still aging and early-generation tires were not constructed with high-tech materials as their 21st century counterparts.

It was August 9, 2000, when Bridgestone/Firestone first announced a voluntary recall of 6.5 million SUV tires. Later, the U.S. Department of Transportation National Highway Traffic and Safety Administration (NHTSA) ordered Bridgestone/Firestone to recall an additional 6.5 million Firestone ATX and Wilderness tires. In 2001, Ford

Motor Company announced it would replace 13 million Wilderness AT tires on its sports utility and pickups as a result of mounting concerns surrounding their safety and as a contributing factor to SUV rollover.

Safety Research & Strategies (SRS), an independent advocacy safety group, documented failed tires and found, as of December 2006, 108 incidents in which tires older than six years experienced tread/belt separations—most resulting in loss-of-control crashes. Those incidents caused 85 fatalities and 115 injuries. The tires described in these studies were spares, pulled from their perch and pressed into service.

From these studies we learn that failure of "aged" tires was a contributing factor. Spare tires that sat in their tray, pulled and put into service years after their production, were those most likely to fail. The irony is that all these tires were manufactured to federal safety specifications in place dating back to the '70s. Despite the replacement of new tires in those recalls, consumers rotated the aged spare tire that had not been replaced due to the recall, which caused blowouts. The study by SRS bore out that the recall did not include the spare and therefore tire service stations did not replace it when consumers showed

up for tire recall replacement. These were consumers who responded to the recalls, had tires replaced, and as a result experienced an accident.

Several factors contribute to "aging" tires and include high temperatures, high humidity and improper storage and handling. Tires driven in the south were more likely to fail due to these contributing factors. High speed and heavy loads also contribute to premature aging. Chemical aging causes tires to dry, materials to separate and eventually disintegrate so heavy loads and/or high speeds merely offer the catalyst for a catastrophic event. Cracks around the rim or cracks in the rubber between treads are obvious signs a tire is coming apart. Drive these tires at high speeds in hot climates and you can understand the risk with aged tires.

Among the good news for Corvette owners is that high-speed tires with their robust construction were not found among the tire blowouts that were under study since 2001. High-performance tires use more expensive materials including a halogenated inner liner, which adds strength and is less susceptible to high temperatures, as you would expect with tires engineered to sustain the high speeds of new generation Corvettes. ■